

AMERICAN RAILROAD JOURNAL.

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Cass to visit some Indian tribes living in the vicinity of the Lake. The scientific education Dr. Houghton had received at the Rensselaer Institute at Albany, had well prepared him for his geological investigations in this region, of which these excursions were the commencement. And as his name is so identified with the region, and the final development of its resources is mainly due to his extraordinary enterprise and perseverance, to which indeed his life fell a sacrifice, I shall perform but a just tribute to his memory and worth by tracing in detail his explorations.

In the year above named, he passed three times along the south coast of the lake, and ascended several of its tributaries. He also explored the wild country between Lake Superior and the Mississippi river, passing across by three different routes widely separated from each other. These examinations convinced him that the mass of former explorers, and even the natives themselves, had no knowledge of the true sources from which the transported masses of copper had their origin. He was at that time the first to notice, that the native copper occurred *in place* in the greenstone trap rocks, and that ruins of its ores existed in the conglomerates somewhat obscurely continued from the trap region—"while their examination was sufficient to enable me to draw the inference that the native copper came chiefly, if not wholly, from the trap, and more rarely from those sedimentary rocks resting immediately upon it, it was supposed that this occurrence would follow the general law, and that it together with the other ores of the metal would occur in greater abundance near the line of junction of this rock with the overlying sedimentary rocks."—(State Reports, 1841, Senate Documents, No. 16, p. 52.)

In 1838 Dr. Houghton was appointed State Geologist, and in 1840 under this appointment, he extended his researches into the Lake Superior region. His first report, published in 1841, gives a general outline of the metalliferous district, and a description of the ores and their true repositories. In April 1841, he gave an oral account of the country at the meeting of the Association of American Geologists in Philadelphia. The report of this, published in the Transactions of the Association, is perhaps as correct and condensed an account of the geological structure of the country as could now be written with all the aid derived from the subsequent extended explorations.

"He began by remarking, that that portion of

Michigan lying between Lakes Huron and Michigan on the south, and Lake Superior on the north, is known as the upper and northern peninsula, while that portion of the state lying south of the Straits of Mackinac is more usually known as the southern or lower peninsula.

The rocks of the earthy portion of the upper peninsula, for a distance of one hundred and fifty miles, consist of a series of fossiliferous limestones and shales, resting upon sandstones, the whole dipping a few degrees east of south. The limestones appear only on the southerly portion of the peninsula, while the underlying sand-rocks form the immediate coast of Lake Superior.

At a point very nearly one hundred and fifty miles west from the easterly extremity of the peninsula, and near to the immediate coast of Lake Superior, several low ranges of granitic hills make their appearance, which hills are flanked on the south, by quartz rock, alternating with mica, talcose and clay slates. These hills have a general easterly and westerly direction.

Northerly from these, other ranges of hills occur, having a similar direction, but in the several ranges as we proceed north, the granitic character becomes less and less perfectly defined, being first sienitic, after this altered sienite, and finally the outer or northern range is made up of well defined trap.—This range of trap hills continues very nearly unbroken for a distance of one hundred and thirty-five miles within the limits of Michigan. The trap rock, which chiefly appears as a compact greenstone, is nevertheless, quite uniformly bounded on the north by an amygdaloid, against or upon which rests a very coarse conglomerate, and upon this a series of alternating strata of conglomerate and sandstone, the whole being capped by an extensive formation of red sandstone.

The group of stratified rocks referred to, which have an entire thickness of several thousand feet, dip very regularly, and usually at a high angle, into the basin of Lake Superior; and since the same is the fact in regard to the rocks upon the north coast, that lake may be said to occupy a synclinal basin.

After some remarks upon the successive elevation of the several ranges of hills referred to, together with the long intervals of time that would appear to have elapsed between the several uplifts, Dr. H. proceeded to say, that with our present imperfect maps, it would be nearly impossible to convey a clear conception of its geographical geology, and that in fact he had made these references, only to render more intelligible what he wished to say upon the subject of metalliferous veins of the district.

It is a fact well known, that south from the district referred to, transported masses of native copper are occasionally met with, in the diluvial deposits which are so abundantly spread over the country; and these loose masses are distributed over an area of many thousand miles, including southern Michi-

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Copper Ores of Lake Superior.

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The conclusions to which Mr. Schoolcraft was led by his explorations in 1819, and which may be found, with other interesting matter, in the report I have already quoted so largely from, are in amount that a mineralogical survey of the rock formations skirting the Ontonagon would result in the discovery of very valuable mines of copper ores; in the working of whch the ordinary advantages of mining would be greatly enhanced by occasional masses of veins of native metal. But the remoteness of the country and the condition and temper of the Indian tribes inhabiting it, involving the necessity of a military to protect mining operations, rendered the expediency of any immediate attempts to develop its resources very questionable.

In 1831-2, Douglass Houghton, M. D., was employed by the government of the United States to accompany as surveyor the expeditions under Gen.

gan, Wisconsin, Illinois and Indiana. In northern Michigan they are still more frequently met with.

The great transported mass of native copper on the Ontonagan river, so frequently alluded to by travellers, and which he, Dr. H., estimated to contain about four tons of native metal, was stated to have all the characters of the loose masses referred to.

The source of these transported masses has, heretofore, been somewhat obscure, although there has been good reason to believe, that most of them had their origin from the trap rocks, but whether from true veins or from the mass of the rock itself, was not known. He said that after examining the country with care, he was enabled to state, that without doubt a very considerable portion of them had their origin from what may be regarded as true veins.

Those which were regarded as true veins, were uniformly noticed to originate in the trap rock, but they were frequently traced across the superimposed sedimentary rocks, to and including the sandstone. The direction of the veins across the upper rocks most frequently corresponds to the dip of those rocks.

Dykes of trap, transversing the conglomerate and sandstone, were stated to be of frequent occurrence; but these dykes very rarely cut across the strata of the upper rocks, or in other words, they mostly occupy places corresponding to the lines of stratification, for which reason the veins referred to, cut across the dykes at very high angles.

So far as we were enabled to judge from the examinations which have been made, those veins originating in the outer range of trap hills are the only ones in the district deserving the name of metalliferous veins. Not only do the separate veins vary from a mere line of several feet in thickness, but those traversing the several rocks above, are usually very much expanded in their passage across the upper rocks.

By far the most important minerals contained in these veins are the several ores of copper. The metal occurs in a native form associated with the grey and red oxides, carbonate and silicate, together with several mixed compounds. Sulphuret of copper is exceedingly rare, and pyritous copper has been found in what was regarded as a true vein, though this last named mineral, associated with the sulphuret and carbonate of lead, was noticed in small ramifying veins, in what may perhaps be regarded as a distant portion of the range under consideration. Native silver was very rarely seen in the form of specks and strings associated with the native copper.

Most of the ores of copper occur in the green-stone, amygdaloid and lower portions of the conglomerate, or at points in near proximity to the dykes before referred to, and they are most abundant at, or near to the junction of the trap and conglomerate, or in the immediate vicinity of the dykes, thus following the general laws respecting the deposits of the metallic minerals.

As the veins recede from the trap, the place of the copper is frequently supplied by the silicious oxide and carbonate of zinc, together with calcareous spar, which latter usually fills the entire vein in its passage across the sandstone.

The veinstone in those portions of the vein most rich in the ores of copper is chiefly quartz, and this is frequently filled with minute specks and filaments of the native metal.

Dr. H. conceives these to be veins of sublimation, or in other words to be simple fissures filled from below by the metal in a vaporous state, and that all the compounds had their origin from copper in a native form. The conglomerate was stated to have been noticed where the cement consisted to a large extent of ores of copper, and even of copper in a native state. This was observed only in close proximity to considerable veins.

The veins, as well as different portions of the same vein, are very variable in their metalliferous character, portions being apparently rich, while others are completely barren. With the present knowledge upon the subject, we can scarcely arrive at safe conclusions as to the value of these veins for the purposes of mining, but upon a whole they may be looked upon favorably than otherwise.

In his earliest reports, Dr. Houghton appears to have detected the principal important peculiarities of the metalliferous deposits, such as have been

subsequently established by mining operations—as for instance, the favorable character of the Amygdaloidal trap for the development of the metallic veins; their occurring most largely developed directly at or near to the line of junction of the trap and sedimentary rocks; the changes of the veinstone in the passage from one rock to another; and its unfavorable character in the red sandstone—and finally, that the only ores in their veins which can reasonably be hoped to be turned to practical account, are those of copper." Fully impressed, as he was, with the importance this region would ultimately acquire from its copper mines, his opinions notwithstanding, were always expressed with the greatest caution, and the remarks concluding his description of them are characteristic of his good sense and foresight. "While I am fully satisfied that the mineral districts of our state will prove a source of eventual and steadily increasing wealth to our people, I cannot fail to have before me the fear, that it may prove the ruin of hundreds of adventurers, who will visit it with expectations never to be realized. The true resources have as yet been but little examined or developed, and even under the most favorable circumstances, we cannot expect to see this done but by the most judicious and economical expenditure of capital at those points, where the prospects of success are more favorable.

It has been said of the Cornish district in respect to the supposed large aggregate of profits, that 'a fair estimate of the expenditure, and the return from all the mines that have been working for the last twenty or thirty years, if the necessary documents could be obtained from those who are interested in withholding them, would dispel the delusion which prevails on this subject, as well as check that ruinous spirit of gambling adventure, which has been productive of so much misery.'—(Hawkins on the Tin of Cornwall.) And if these remarks will apply to a comparatively small district, which has been explored and extensively worked for centuries, with how much more force must they apply to the mineral districts of our own state. I would by no means desire to throw obstacles in the way of those who might wish to engage in the business of mining this ore at such time as our government may see fit to permit it; but I would simply caution those persons who would engage in this business in the hope of accumulating wealth suddenly, and without patient industry and capital, to look closely before the step is taken, which will most certainly end in disappointment and ruin."

The great value of the territory being thus fully established, a treaty was effected in 1842 for its purchase, and Dr. Houghton, while still conducting the geological survey of the state, entered into a contract with the general government to perform the arduous task of accurately surveying the wide territory, and running out the township and section lines.—By thus doing both the geological and topographical work at the same time, he was preparing perhaps the most perfect geological map ever published, when his labors were arrested by his untimely death. His extreme ardour and enthusiasm permitted him not the usual hours for rest. By night when no one could travel in the woods, he was traversing from point to point about the coast in his boat, venturing out in rough weather in the most dangerous navigation. Late one night, the same year he was lost, he and his men made their way into a little harbor, where I lay encamped, worn down by a hard struggle they had had to reach the land against a violent head wind; and yet before we were out of our tent

in the morning the Doctor and his party had disappeared. But in one of the autumnal storms, on the night of the 13th October, 1845, his boat, unable to withstand the violence of the waters, filled and capsized, and the Doctor and two of his men were drowned—the other two were washed ashore and succeeded in gaining a footing on the rocks. H.

AMERICAN PATENTS.

Rails.

Messrs. Steele & Middleton's compound bridge-rail, as described by those gentlemen in last week's number of this Journal, is an ingenious advance in principle towards a remedy for the faults of the rails generally used. The section combines some of the advantages in point of strength of the hollow cylinder, a form stronger than a solid of the same quantity of metal, by according to Eytalvein, one-fifth when the inner semi-diameters are to the outer as one to two; and, according to Tredgold, by seventeenths when the semi-diameter is to each other as 15 to 25. The bearing on the timbers is also increased in this compound rail, and in consequence, so far as the base is concerned, sufficient steadiness may be obtained with these rails independently of any chairs. The inventors omit to say whether the rail is designed to dispense with chairs—but the form itself seems to imply such an intention. The base of this rail is five inches, and therefore half an inch wider than a rail which is found sufficiently steady without the help of chairs on the railway between London and Croydon, in England. The lengths on the inside and those on the outside are intended to break joint: this arrangement will give the rail the same evenness of surface as that of one continuous bar. These are the advantages of the compound rail.

The lateral strength given in this section is hardly sufficient for heavy engines, and with such the dimensions of the vertical joints must be somewhat increased to keep the rails in gauge, and prevent the injurious effects to the durability of the rail consequent on a change of form. This applies especially to the outside part, which, with a scantling of half an inch, will have to resist the force of the oscillations of carriages at the tyre of the wheels under the diminution of strength consequent on the simultaneous application of a heavy vertical strain. The heel and toe, but especially the toe, of the outside part are of rather light scantling, unless it is intended to bolt both heel and toe to the timber. The heel of the outer portion of the rail under consideration would perhaps be placed to more advantage in locking the parts together and distributing the pressure equally by projecting under and fitting tight up to the body of the inner portion. This may perhaps save the bolt, which must otherwise be used to fix this part. Rigidity, almost absolute rigidity, is according to all experience, necessary to the full service of a rail, and the degree of rigidity may be considered to regulate the degree in which other causes besides friction enter into the wear and tear. Four bolts will be necessary at each interval of this rail: one on the inside; one on the heel, and one on the toe of the outside; and one through the body.—By the suggestion made above for locking the parts, this may possibly be reduced to three bolts for each interval. The bolting may split the longitudinal bearers: in order to prevent this, and at the same time prevent spreading of the parts, it will probably be found necessary to counter-sink in the timbers and bolt down firmly between the rail and the bearers a small plate of wrought iron at every set of holes. It may, however, be found judicious to make the bolts alternate with each other, as this will probably

lessen the liability of splitting or weakening the bearers, and have the further effect of increasing the stability by increasing the number of fixed points. These suggestions are thrown out honestly as they occur, and with a view of turning to the best advantage of the inventors an ingenious attempt to meet one of the defects in the present system of permanent way. We must now in justice to all parties, and to our own professional character, state candidly what appears to us to be the faults in this rail.

The screw-bolt, intended to bind the parts together, is open to objection on the ground that the threads of such screws exposed to the action of the weather for a time, are apt to break when the nut is tightened. It will most likely be found very difficult, if not impossible, to fix the parts so close and true that the inner shall rest on the outer;—even a very trifling space between the two will lead to a springing that will, by producing percussion, weaken or destroy the rail. It would be almost impossible to guard against this, though the consequence would involve constant labor and attention refixing the rails. The form of the rail is so very irregular that the rolling must lead to an entirely new arrangement of the laminae of the metal, which, under heavy loads, will consequently become very rapidly destroyed in texture or 'upset.' The more uniform a bar is in its cross section the less injury does the rolling do to its surfaces, and consequently the greater will be the duration of the bar. These are our views on the subject of the compound bridge-rail, and we may sum them up briefly by saying that while these are serious objections to their invention, Messrs. Steele and Middleton have made what we regard an ingenious advance towards a very desirable end in railway economy.

M. B. H.

The Electric Indicator for Boilers.

In last week's number we gave an account of an invention purporting to prevent boiler-explosions by an electric current made at an assumed limit of safety to ring an alarm bell. The report of this invention lays emphasis on the circumstance of the signal's being effected at a certain *degree of temperature* rather than as in all other contrivances for the purpose at a certain *degree of pressure*. Now if by temperature in the case is meant the latent and apparent heat of the steam—and we know no other meaning regarding temperature as a test of safety—this new gauge does not appear to possess any advantage over the usual gauge under proper care, seeing that, the elasticity varying according to the formula of Tredgold, Arago, etc., as the fifth or sixth power of the temperature, elasticity and temperature bear to each other fixed relations. The elastic force being assumed as the cause of explosions the degree of elasticity appears the simplest and more direct indicator of danger. But perhaps the invention presumes that the elasticity test is more liable to derangement in working: we however incline to think that the column of mercury used to complete the electric circuit will lead to irregularities when in direct contact with high temperature.

If an excessive elasticity of steam be the cause of explosions in steam boilers, the remedy is evidently a safety-valve; and as the safety-valve is in practice found sometimes to fail, the question arises naturally: have the safety-valves used in those cases been of sufficient capacity?

Suppose a boiler that contains 50 cubic feet area is filled with steam and water in equal volumes, and that the pressure on the boiler is one fourth more than the effective pressure on the piston. Assume also that the piston, condensing one cubic foot of

steam at every stroke, makes 100 strokes per minute, and with the steam at the temperature of 308° F., (giving a boiler pressure of five atmospheres or 7375 pounds) stops suddenly. At the end of the first minute, the boiler, holding in addition to its working quantity, all that would have been condensed by the working of the piston during that time, contains an amount of steam equal to 100 feet at the original temperature and pressure. This being compressed within an area of 25 feet, the elasticity, according to the law of Mariotte, is four times the working elasticity; and the heat that would have been given out with the steam being retained, the temperature in the boiler is four times as great as the working temperature. Now the pressure originally on the boiler having been 7375 lbs., the pressure arising from the increase of density is therefore 295 pounds; and with a temperature four times as high as the original, *the pressure increasing as the 6th power of the temperature*, this one minute's stop may be readily conceived to create in a close boiler a power calculated to exceed its strength several hundred-fold.—Of what avail then is a mere signal of danger, seeing that the danger accumulates too rapidly to admit of applying a timely remedy. This view of the case places the supposition of these disasters' being caused by the elasticity of steam quite in keeping with the appearances which they give of the agency of some explosive gas.

Now if the accumulation of steam be taken as the cause of the explosions, the remedy, as said before, is evidently a valve that shall be of sufficient capacity to carry off the accumulations above the point of safety as rapidly as they are generated. In the case supposed the accumulations are taken at 75 feet of steam of 308° Fahrenheit per minute, and the question of the capacity of the valve becomes: what capacity is necessary to discharge this accumulation in that time? The abstract formula for the velocity of steam through an orifice into another fluid of greater rarity than itself is this:

$$v = 8 \sqrt{h}$$

where h is the height of a uniform atmosphere corresponding to the difference between the elasticity of the steam and that of the rarer fluid. But owing to friction and any other cause that may arise, it might be better to take the co-efficient at 6, so that the formula would stand at the lowest value

$$v = 6 \sqrt{h}$$

The value of h in the case under consideration, the difference between the two fluids being four atmospheres is therefore 111,272 taking a homogenous atmosphere at 27,818 ft. high. The value of v then is $6 \sqrt{111,272}$, or $6 \times 333.5 = 2001$ feet per second. With this velocity the question becomes: what area of orifice will discharge the steam accumulated in the time of accumulation or in the case under consideration 1.66 cubic feet of steam per second under a pressure of five atmospheres. This is clear enough: this discharge requires under the velocity given an orifice of 0.12 square inches. To sum up these remarks in a rule that may be applied in practise by every one: express the proposed maximum pressure of the steam in its equivalent column of a fluid whose pressure is 14.75 lbs. for a height of 27,818 feet: extract the square root of the difference between the height in feet of the column resulting, and that of a homogenous atmosphere or 27,818 ft. and the result multiplied by 6 will give the velocity in feet per second with which steam will rush thro' an orifice under the given maximum pressure into the open air. Divide the velocity so obtained into the maximum volume of steam to be generated per

second by the heating surface and the quotient is the area of the valve necessary to discharge that maximum as rapidly as it is generated.

M. Arago, who has made investigations by order of the French government, into steam boiler explosions, reports a case where the explosion took place after the withdrawal of the safety valve, and P. of Barlow remarking that M. Arago offers no explanation of this fact, attempts to explain it by conjecture; but the common sense view of the question would seem to say that if the elasticity of steam be the agent, a safety valve being evidently the remedy, this particular case, as all others, must have been owing to the insufficient action of the valve. Let safety valves be shown to have been of proper size and then indeed we will be in a position to refer explosions under such circumstances to a cause beyond our knowledge; but at present it appears very unphilosophic to take up at once the supposition of gaseous compunction, or any other theoretical vagarie without a full inquiring into the condition of the valve.

It may be remarked in conclusion, that the formula given for the velocity is not the exact one; but has been used as less complicated in calculation.—The true measure of velocity is \sqrt{gh} , where h has the same value as in the formula given above, and g is the space a body acted on by gravity alone falls through in one second of time or 16 1-12 feet. The contraction of the fluid vein for steam is supposed to be the same as for water; but the two fluids are so very different and the means of ascertaining the contraction so liable to objection that no proportion can in truth be laid down to establish the "vena contractor" for steam.

M. B. H.

The First Steamboat that ever Ascended the Ohio River.

The following article possesses intrinsic interest, as a means of showing how great has been the progress in steamboat building, steamboat navigation and in the facilities for commercial intercourse with the west within the last thirty-four years:

From the Cincinnati Gazette, of 1815.

The Steamboat Enterprise.—This is the first steamboat that has ever ascended the Ohio. She arrived at Louisville on the 1st instant, sailed thence on the 10th, and came to at this port on the evening of the 13th, having made her passage from New Orleans, a distance of 1800 miles, in twenty-eight running days, (by the aid of her machinery alone, which acts on a single wheel placed in the stern,) against the rapid currents of the Mississippi and the Ohio.—This is one of the most important facts in the history of this country, and will serve as a data of its future greatness. A range of steamboats from Pittsburg to New Orleans—connecting Pittsburg and Cincinnati; Cincinnati and Louisville; Louisville and Smithland, at the mouth of Cumberland, or some eligible place on the Mississippi, below the mouth of the Ohio, thence to Natchez and from Natchez to New Orleans, will render the transportation of men and merchandise as easy, as cheap and expeditious on those waters, as it is by means of sea vessels on the ocean, and certainly far safer! And we are happy to congratulate our readers on the prospect that is presented of such an establishment. Two steamboats, considerably larger than the Enterprise, and yet not too large for the purpose, are already built at Pittsburg, and will no doubt commence running in the autumn. Others will follow; the success of the Enterprise must give a spring to this business that will in a few years, carry it into complete and successful operation.

The Enterprise is a small vessel, carrying only 35 tons of cargo, exclusive of her machinery.

She has, however, very good accommodation for between thirty and forty passengers—the ladies' apartment separate from the gentlemen's. The price of passage from New Orleans to Cincinnati is \$130, and hence to Pittsburg \$30.

The Enterprise brought an assorted cargo of cotton, sugar, lead, &c. She sailed from Pittsburg on the morning of the 17th, and was expected to arrive there in eight or ten days; but we learn from Marietta that some part of the engine got deranged, which prevented its operations, and it was not until the 25th that she arrived at that place. She started from Marietta on the morning of the 26th, but we have not yet heard of her arrival at Pittsburg.

Since the arrival of the steamboat, several barges also arrived here from New Orleans, in passages of 130 and 142 days.

We have recorded these acts on the same page in order to call the attention of the public to the superior merits of the steamboat navigation, to mark particularly the period when this navigation may be said to have commenced, and to excite, if possible, an ardent desire to promote its extension.

In the present condition of steam navigation, a voyage is made from New Orleans to Cincinnati in less than five days, and the whole distance to Pittsburgh in about seven and a half days sailing time, or within nine days including all detensions.

The journey from New Orleans to New York, by taking the railroad from Cincinnati to Lake Erie, can now be accomplished in nine days time.

Alabama.

We copy from the National Intelligencer the following interesting account of the natural advantages and resources of this state, and the progress she is making in their development. A few years of unexampled prosperity of the cotton interest turned the whole industry of the south to the cultivation of this plant, and the encouragement of every other branch of industry was looked upon with suspicion as hostile to this interest. The consequences were what might be expected.—Over production was stimulated by this demand, and the culture of cotton from being the most profitable, became the most unproductive business in the country; and those states that were most interested in its production are now most active in turning their labor into other pursuits, and of enlarging the variety of their products. So long as selfishness regulates the laws of trade, so long must a country producing but one staple be always poor, because for all other articles that enter into consumption they are at the mercy of other producers, at the same time they are compelled to part with their staple at any price to procure the necessities of life.

NATURAL ADVANTAGES.

Open to the Gulf of Mexico on the south boundary, with a spacious bay, over the bar of which ships drawing twenty and three quarter feet at low tide safely ride, and into which all of her rivers, with two exceptions, flow—the one invites thither ships of the largest class, and the others bear to Mobile, from the fertile valleys and plains above, their valuable productions. Alabama is watered by the following noble rivers.

Names of rivers.	Navigable description, etc.	Miles in	Empties into.	Miles Alab'ma
Mobile,	Largest class steamers,	60	Mob. bay	
Alabama,	do.	450	Do. river	
Tombigbee,	do.	540	do.	
Warrior,	do.	150	Tombig.	
Tennessee,	Do for 1000 miles altogether,	150	Ohio riv.	
Chattahoochee,	Do. eastern boundary,	200	Apalach.	
Coosa,	Largest bel. & small above falls,	170	Alabama	
Cahawba,	Small st'r's & flats,	120	do.	
Tallapoosa,	do.	40	do.	
Noxuba,	do.	50	Tombig.	
Suckernochee,	do.	35	do.	
	Navigation,	1945	miles.	

Such are our great and peculiar advantages of navigation that our citizens will never be compelled to abstract from other investments—they may choose largely of their capital for internal improvements. But there is a railroad now in progress, the Mobile and Ohio, that I may properly regard as associated with the natural advantages of the state. The Gulf of Mexico, sweeping up into this division of the continent, continued northerly by the bay of Mobile, with the Mississippi river inclining from its mouth northeast, throws this river at the mouth of the Ohio within 445 miles of Mobile, the commercial emporium of Alabama. The country between those two points being remarkably level, the route unobstructed by a single mountain or river, or any stream of moment, and running in its whole extent through one of great beauty and fertility, and already settled by an active and wealthy population, must throw their great trade and travel through Alabama into Mobile; and in twenty hours or less citizens of Missouri, Ohio, Kentucky, or elsewhere, may leave Columbus in Kentucky, the upper terminus, and arrive in Mobile with their produce in one fifth the time they could reach New Orleans.

Before I proceed to the other very interesting portions of this branch of the subject, I will here allude to such internal improvements as are already completed or are in active progress.

The Muscle Shoals canal complete, 35½ miles. Huntsville canal, " 16 " Tuscumbia and Decatur road, " 44 " Montgomery and W. Pt. nearly " 87 " Cawhawba and Marion, " 35 "

Canals and railroads, length, 217½ miles.

A railroad from Selma or some other point on the Alabama, to the Tennessee river; one connecting the Tuscumbia and Decatur with the Mobile and Ohio road, and another from Blakely, opposite Mobile, to Columbus, Ga.—each of which would add greatly to the traffic and wealth of the state, and pay good dividends—are perhaps the only ones of importance contemplated.

To continue with natural advantages.—From Tuscaloosa, on the Warrior, in the direction of Selma, on the Alabama, are bituminous coal fields and iron ore, with marble and hard and soft limestone quarries, in rich and inexhaustable profusion, immediately on navigable streams. The lands are covered with splendid forests of white and live oak, cypress, pine, cedar, mulberry, hickory, etc. Water power is unlimited and never failing. Irrigated by so many streams, as indicated by 1,945 miles of navigation, with the innumerable tributaries thereto, the lands of Alabama are of amazing superiority, as their productions hereinafter noticed will exhibit, and with a climate temperate and uniform, it is decidedly healthy.

PRODUCTION.

To regard alone the ascertained value and extent of the surplus products of Alabama, which we ship off, compared with those of other states, omitting an estimate of our own heavy consumption of corn, wheat, hogs, cattle, sheep, timber, cotton consumed in home

manufactures, value of negroes raised, and horses and mules raised, which would amount to several millions—confining ourselves to the surplus productions, I say we will, I think do so with some astonishment, as associated with it must be the effort to estimate the vastness of the capital employed to produce it.—Her surplus productions are cotton, lumber, staves, turpentine, manufactured cottons, coal, etc.

What is her cotton crop and its value? I will arrive at it in this way, and pardon me for assuring those who read this that I am quite sure I shall not be far from correct. To the amount of cotton received at Mobile, I will add the quantity raised in N. Alabama, which is forwarded down the Tennessee or hauled overland to Memphis. I will also add the quantity which goes down the Chattahoochee to Apalachicola. Adding these together I will deduct the quantities raised in the east counties of Mississippi. This will show the crop of Alabama to result as per following table:

Where received and raised.	No. bales	cotton	cotton for years	1846-7	1847-8	1848-9
Alabama and Mississippi, at Mobile.....	323,462	436,661	530,000			
North Alabama to New Orleans, as per census of '40, 49,225,474 lbs. at 510 lbs. to the bale is.....	96,500	96,500	96,500			
East Alabama, shipped to Appalachicola for Chattahoochee.....	50,000	50,000	50,000			
	469,962	583,161	676,000			
Less Eastern Mississippi crop.....	60,000	80,000	80,000			
Nett crop of Alabama in bales.....	409,962	503,161	596,000			

And the following table will show the value of these crops of cotton, at the average price it sold at, of the respective seasons at Mobile for the three years :

Year.	No. of each.	Weight lbs.	Total value.
1846-7	309,962	510	209,080,620
1847-8	503,111	510	256,612,110
1848-9	596,000	510	298,760,000

1,509,123 764,452,730 59,848,483 30
Average of 3 yrs. 503,041 254,817,577 19,949,494 43

Enormous as this is, yet this great interest of Alabama, as well as the whole south, does not yield so profitable a dividend on the capital invested as other investments elsewhere do.

With such varied and extraordinary advantages for commerce, manufacturing mining, ship building, timber getting, etc., it is not to be wondered at that Alabama is beginning to direct her attention to the advantages of diversifying her pursuits; and, under any circumstances, in time, those vast sources of wealth now reposing within her borders must become trancendantly productive. The accumulation of wealth which has been going on, but which has been regularly invested in the purchase of negroes, is now being stayed from that direction, and turned towards other industrial pursuits. It is obvious, however, to every political economist that it is the interest of every one in the country to promote

the value of cotton, as should there be a violent transition of slave labor to the pursuits above alluded to, and which is entirely practicable, a derangement of trade would ensue, which would be prejudicial, to say the least of it, to the interests of other sections of the confederacy.

Cotton factories and iron forges are, however, becoming numerous. Coal mining is attracting great attention, and from the great profits arising from investments in ships, and our wonderful facilities for building with our splendid timber on the spot, etc., it is not unlikely we shall ere long enter the list as competitors with our northern brethren, in this exceedingly profitable branch of their wealth. In Alabama our citizens are generally exempt from embarrassment, and in certain quarters large amounts of money are known to be hoarded.

The university and college, the high schools and academies in all the principal towns and cities of the state, are in the highest degree flourishing; and the great increase of the number of churches and membership, the decrease of crime and orderly character of our citizens, manifest the spreading influences there of religion.

Wire Suspension Bridge.

The Wire Suspension Aqueducts, over the Delaware and Lackawaxen rivers, which were commenced in 1846 and recently completed on the Delaware and Hudson Canal, are now opened for the passage of boats. These works have been erected for the purpose of avoiding the delay, formerly experienced in crossing the Delaware river by means of a dam, and will materially improve the navigation on them. They are constructed on the plan of the Pittsburgh Suspension Aqueduct, a structure which has proved eminently successful and was the first of its kind in the world, designed and executed by John A. Roebling, Civil Engineer of the city of Pittsburgh. After an examination of the work at Pittsburgh by Mr. R. F. Lord, Chief Engineer of the Delaware and Hudson Canal, a contract was entered into with Mr. Roebling for the erection of the superstructure of the Delaware and Lackawaxen Aqueducts.

The trunks which hold the water are composed of timber and plank, well joined and caulked, and suspended from two wire cables, one on each side. The cables rest in heavy cast iron saddles which are placed on the top of small stone towers of 4 by 6 ft. base rising 4 feet above the towpath. The trunks are wide enough for two boats of the present capacity to pass, and on each side of each trunk is a towpath. The towers are each composed of 3 blocks of a white quartz pudding stone, of great hardness and durability, obtained from the quarries in Ulster county, N. Y. The masonry of the piers and abutments, which support the little towers, has been executed in the most substantial manner, of a durable and compact gray wacke, which constitutes the principal formation of the valley of the upper Delaware. The beds of the face stone are all cut, the backing is large and well bounded, and the whole laid in hydraulic cement. Nothing has been spared to insure the safety of the foundations, and, by the construction of good ice breakers, to guard the piers against the heavy floods and ice, which in this river prove sometimes very violent and destructive.

The cables are each made in one length across the river from abutment to abutment, and connected at their ends with anchor chains, manufactured of solid wrought iron, in bars of from 5 feet to 10 feet long and 5 to 6 inches wide, by 1 $\frac{1}{4}$ inch thick.—The lower end of each chain is secured to a heavy cast iron anchor plate of 6 ft. square, on which rests a large body of masonry, whose weight resists the strain of the chain and cable. As the cables are protected against oxidation by paint and a copious varnish, and are closely encased by a tight wire wrapping, which gives them the appearance of solid cylinders, they may be considered indestructible.

The woodwork is subject to decay, but will last longer in these works than in common timber structures, and can be renewed at any time.

The following table exhibits the principal dimensions and quantities of the Delaware Aqueduct: Hydraulic cement masonry in Abutments, Piers and Anchorage..... 7,688 C. yds.

Length of Aqueduct with extensions. 600 ft.

Number of Spans..... 4

Length of Spans varies from 131 to... 142 ft.

Width of Trunk at water line..... 19

Depth of water..... 6 ft. 6 in.

Weight of water between abutments. 1,950 tons.

Weight of water in one Span..... 487 $\frac{1}{2}$

Diameter of wire cables..... 8 $\frac{1}{4}$ in.

Length of wire weighing 1 lb..... 17 $\frac{1}{2}$ ft.

Number of wires in each cable..... 2,150

Total weight of cables and anchor

chains..... 490,000 lbs.

Ultimate strength of each cable..... 1,900 tons.

The new Aqueducts over the Neversink at Cuddebackville, and the Rondout at High Falls, will be constructed on the same plan in the course of this season. There will then be on the line of the Del. and Hudson Canal four wire Suspension Aqueducts, most perfect and complete, as far as durability and economy are concerned.

The general enlargement of the canal has been prosecuted vigorously during the last winter.—Fifteen of the enlarged locks, being 100 ft. long, between quoins, and 15 feet width of chamber, are brought into use this spring, and the whole are to be completed by the opening of canal in the spring of 1850, making the canal then competent for the passage of boats loaded with 130 to 140 tons of coal.—

Honesdale Democrat.

Stockbridge Iron Works, July 2, 1849.

H. V. Poor, Esq.,

Dear Sir: I send you herewith some account of our workings in our No. 2 furnace, which you showed in sketch in the last number of the Railroad Journal. The proportions of our furnace differ so much from that adopted in Tuscany, it will do well to compare them. The great yield of the Tuscany furnaces is more to be attributed to the friable nature of their ores and the good quality of the charcoal than to any shape of the furnace. The quantity of stock consumed in Tuscany per day shows that their blowing works are on quite a large scale or they would not be able to consume so much fuel. The quantity of air required to make a ton of iron and to work up the fuel to the best advantage is at least 25 tons to each ton of iron made; proving at all events they are not deficient on this point: besides, all of the ore used is well roasted before going into the furnace, thereby requiring less time to be prepared for separating in the hearth. The blast, of which I send you only a part of the best workings, averaged during the whole time nearly ten tons per day. We have made iron as low as 70 bushels of coal per ton for a week, and take the average on a make of 10,000 tons it will go as low for fuel as the within table—25-68 cubic inches make a bushel in Massachusetts, charcoal measure.

Yours truly, C. C. ALGER.

Tables Referred to by Mr. Hodge on Page 386.

A Table, showing six weeks' working of Furnace No. 2, Stockbridge Iron Works, Stockbridge, Mass.

DATE. 1848.	No. of charges.	Amount of char- coal used in bush.	Roasted ore in pounds.	Wash ore in pounds.	Fluxing in pounds.	Product in cast iron.			Produce of ore.	Produce of coal.	REMARKS.
						T. cwt. qrs. lbs.	13	16	2		
Feb'y 10	101	1632	30,300	35,350	12,625	13	16	2			
11	84	1392	27,746	29,400	10,500	12	4	2			
12	88	1456	29,346	30,800	11,000	12	14	3			
13	86	1408	21,400	35,030	10,750	12	1	1			
14	84	1360	21,000	35,285	10,500	11	18	0			
15	87	1408	21,750	36,975	10,875	12	13	1			
16	91	1472	22,750	39,275	11,375	13	9	2			
17	85	1376	21,250	38,250	10,625	12	2	0			
18	87	1408	21,750	39,150	10,875	12	16	1			
19	75	1280	18,750	33,750	9,375	10	10	3			
20	74	1232	18,500	31,600	9,250	10	6	0			
21	75	1216	18,750	30,000	9,375	10	14	2			
22	82	1312	20,500	32,800	10,250	11	12	0			
23	89	1456	22,250	34,000	11,125	11	17	0			
24	81	1312	20,250	35,450	10,125	11	12	3			
25	86	1376	21,500	38,700	10,750	12	11	1			
26	82	1360	20,500	35,850	10,250	12	2	0			
27	90	1454	22,500	32,000	11,250	11	14	3			
28	91	1456	22,750	36,400	11,375	11	15	2			
29	67	1072	16,750	29,000	8,375	10	5	2			
March 1	92	1520	23,000	36,800	11,500	10	17	1			
2	79	1328	19,750	31,600	9,875	11	0	0			
3	84	1360	21,000	35,700	10,500	11	12	0			
4	76	1232	19,000	30,400	9,500	11	2	0			
5	79	1312	19,750	31,600	9,875	10	9	1			
6	79	1312	19,750	31,600	9,875	10	0	0			
7	87	1408	21,750	34,800	10,875	11	12	1			
8	80	1328	20,000	32,000	10,000	11	4	0			
9	85	1392	20,250	34,000	10,625	11	12	3			
10	79	1312	19,750	30,750	9,875	10	2	3			
11	73	1168	18,150	26,975	9,125	11	10	2			
12	92	1472	23,000	38,122	11,500	12	8	2			
13	96	1536	24,000	42,600	9,600	13	11	1			
14	94	1504	28,200	41,150	9,400	14	7	1			
15	68	1152	20,400	22,900	6,800	9	16	2			
16	85	1376	25,500	31,350	8,500	12	6	2			
17	95	1536	28,500	38,000	9,100	14	3	0			
18	90	1504	24,000	36,850	11,250	14	7	0			
19	86	1386	19,800	36,100	10,750	11	3	3			
20	88	1456	14,700	43,475	9,350	12	2	1			
21	103	1780	23,615	49,344	12,200	14	3	1			
22	96	1616	28,550	36,500	12,000	14	5	0			
Total...	3571	58,430	922,807	1461,681	432,700	502	15	0			
Average per week	595	9,738	153,801	243,631	72,116	83	15	3	9		
Average per day.	85	1,391	21,971	34,801	10,302	11	19	1	17		

Railway Share List,
ON A PAR OF \$100 ACCORDING TO THE LATEST SALES.—CORRECTED EVERY WEDNESDAY.

NAME OF COMPANY.	Length of line.	Length of branches.	Miles finished.	Cost of road and equipment.	Cost per mile.	Capital st ^{ks} paid in.	Debt more than surplus.	Ruling grade.	Earnings 1848.	Expenses 1848.	Net earnings 1848.	Rate of dividend in 1848.	Price of shares.	Remarks.
Atlantic and St. Lawrence	146	...	36	In progress	\$.....	.....	.....	.....	.....	.....	.....	.....	78 a 81	
Androscoggin & Kenneb.	55	...	6	In progress	s.....	.....	.....	.....	.....	.....	.....	70		
Albany and Schenectady	16 $\frac{1}{2}$	...	16 $\frac{1}{2}$	\$1,606,196	100,000	.....	.....	.....	.....	.....	.....	1 5-9	89	
Auburn and Rochester	78	...	78	2,644,520	34,000	.....	.....	.....	175,922	.....	.....	8	86 a 87	
Auburn and Syracuse	26	...	26	1,125,886	43,300	.....	.....	.....	454,721	.....	.....	2 9-10	80 a 81	
Attica and Buffalo	31 $\frac{1}{2}$	...	31 $\frac{1}{2}$	821,313	26,000	.....	.....	.....	172,185	.....	.....	4 $\frac{1}{2}$	.....
Alleghany Portage	36	...	36	.....	.....	.....	.....	.....	150,959	.....	.....	.....	Leas'd to	
Albany and W. Stockb.	38 $\frac{1}{2}$	...	38 $\frac{1}{2}$	1,924,701	50,000	.....	.....	.....	.....	.....	.....	.....	Western railroad.	
Annapolis and Elkridge	21	...	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bangor and Oldtown	11 $\frac{1}{2}$	...	11 $\frac{1}{2}$	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston and Lowell	25 $\frac{1}{2}$	14	27 $\frac{1}{2}$	2,013,687	73,200	1,800,000	.....	10 up, 30 down.	461,339	268,707	192,631	8	118 $\frac{1}{2}$	
Boston and Maine	74 $\frac{1}{2}$	5	79 $\frac{1}{2}$	3,571,832	45,000	3,249,804	249,715	47 $\frac{1}{2}$	511,627	264,534	247,893	8 $\frac{1}{2}$	102 $\frac{1}{2}$	
Boston and Worcester	44 $\frac{1}{2}$	22	66 $\frac{1}{2}$	4,960,000	74,700	4,500,000	460,000	40	716,284	406,303	310,080	8 $\frac{1}{2}$	102 $\frac{1}{2}$	
Boston and Providence	41	6 $\frac{1}{2}$	47 $\frac{1}{2}$	3,031,106	63,800	2,893,300	26,878	37 $\frac{1}{2}$	354,375	183,361	170,013	6 $\frac{1}{2}$	93	
Bost., Concord and Mont.	90	...	38	In progress	s.....	.....	.....	.....	.....	.....	.....	.....	82 a 85	
Berkshire	21	...	21	600,000	28,500	.....	.....	.....	.....	.....	.....	7	.....
Buffalo and Niagara	22	...	22	250,396	11,500	.....	.....	.....	60,014	.....	.....	6 1-3	.....
Buffalo and Black Rock	3	...	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore and Susqueh'a.	36	...	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beaver Meadow	26	...	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buck Mountain	4	...	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore and Ohio	178	...	13,136,940	61,900	.....	.....	.....	..	1,468,828	805,530	663,198	.....	43 $\frac{1}{2}$ a 44	
Washington Branch	31	3	3	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Frederick Branch	3	3	3	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Calais and Baring	3	3	3	.....	.....	.....	.....	..	311,326	180,699	130,639	.....	121	
Concord	34	...	34	.....	.....	1,350,000	.....	..	.....	.....	.....	.....	67 a 67 $\frac{1}{2}$	
Cheshire	54	...	54	2,584,143	48,000	1,453,379	1,140,764	60	.....	.....	.....	.....	85	
Connecticut and Passump.	115	...	40	.....	.....	.....	.....	..	165,242	95,658	69,583	8	96 $\frac{1}{2}$	
Connecticut River	50	2	52	1,589,184	30,500	1,234,970	426,013	32	.....	.....	.....	.....	62	
Cape Cod Branch	28	...	28	587,116	20,900	343,000	217,395	40	.....	18,069	.....	.....	.....
Corning and Blossburgh	40	...	40	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Cayuga and Susquehanna	29	...	29	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Camden and Amboy	61	...	61	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Trenton Branch	6 $\frac{1}{2}$	...	96 $\frac{1}{2}$	3,200,000	33,000	.....	.....	..	.....	.....	.....	.....	140 a 142	
New Brunswick Br.	29	...	29	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Columbia	82	...	82	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Camden and Woodbury	9	...	9	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Cumberland Valley	52	...	52	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Carbondale & Honesdale	26	...	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Chesterfield	12	...	12	150,000	13,500	.....	.....	..	.....	.....	.....	.....	.....
City Point	9 $\frac{1}{2}$	...	9 $\frac{1}{2}$	195,867	15,919	.....	.....	..	.....	.....	.....	8	104	
Central of Georgia	191	...	191	3,222,289	16,800	.....	.....	30	516,252	266,450	250,226	.....	80	
Central of New Jersey	63	...	36	.....	.....	.....	.....	..	.....	.....	.....	74	.....
Dorchester and Milton	3 $\frac{1}{2}$	...	3 $\frac{1}{2}$	114,224	35,100	72,990	41,234	39	.....	.....	.....	.....	.....
Detroit and Pontiac	25	...	25	.....	.....	.....	.....	40	.....	.....	.....	.....	.....
Eastern	54	19 $\frac{1}{2}$	73 $\frac{1}{2}$	421,574	18,700	263,746	160,958	55	.....	.....	.....	.....	.....
Essex (Salem to Law.)	22 $\frac{1}{2}$	...	22 $\frac{1}{2}$	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Erie and Kalamazoo	33	...	33	.....	.....	.....	.....	..	.....	.....	.....	.....	88 a 90	
Fall River	42	...	42	1,145,982	27,300	1,050,000	83,177	45	184,344	109,390	74,953	7 $\frac{1}{2}$	85	
Fitchburgh	49 $\frac{1}{2}$	6 $\frac{1}{2}$	56	2,945,630	52,300	2,735,910	67,504	..	486,265	286,046	200,219	8 $\frac{1}{2}$	110 $\frac{1}{2}$	
Franklin	22	...	22	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Greenville and Roanoke	21	...	21	283,917	13,500	.....	.....	..	.....	.....	.....	.....	.....
Germantown Branch	6	...	6	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Gaston and Raleigh	96	...	96	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Georgia (Augusta to At'a)	171	...	171	.....	.....	.....	.....	40	477,052	267,173	209,879	.....	121	
Athens Branch	39	210	37	1,183,257	31,979	609,550	573,707	49	121,350	37,386	83,963	6	96 a 97	
Harrisburg and Lancaster	37	...	37	.....	.....	.....	.....	17	.....	.....	.....	.....	104 a 105	
Hartford and New Haven	62	...	62	.....	.....	.....	.....	..	.....	.....	.....	87	.....
Housatonic	74	...	74	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Hudson and Berkshire	31 $\frac{1}{2}$	...	31 $\frac{1}{2}$	818,983	26,500	.....	.....	..	.....	.....	.....	.....	.....
Hazleton and Lehigh	10	...	10	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Jackson and Brandon	13	...	13	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Lexington and W. Camb.	6 $\frac{1}{2}$	...	6 $\frac{1}{2}$	252,680	38,900	.....	.....	55	.....	.....	.....	.....	.....
Lowell and Lawrence	12 $\frac{1}{2}$	...	12 $\frac{1}{2}$	283,248	22,650	.....	.....	45	.....	.....	.....	.....	85	
Long Island	98 $\frac{1}{2}$	...	98 $\frac{1}{2}$	2,173,646	22,100	.....	.....	..	.....	.....	.....	.....	23 $\frac{1}{2}$	
Lockport and Niagara	23	...	23	221,000	9,700	.....	.....	..	.....	.....	.....	.....	.....
Lewiston	34	...	34	33,673	10,300	.....	.....	..	.....	.....	.....	.....	.....
Lykens Valley	16	...	16	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Little Schuylkill	23	...	23	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Louis ^a	50	...	50	474,137	9,482	.....	.....	..	.....	.....	.....	.....	.....
Lexington and Frankfort	29	...	29	450,000	15,600	300,000	.....	61	50,000	30,000	10,000	.....	82 a 85	
Little Miami	84	...	84	1,513,402	18,000	.....	.....	..	.....	.....	.....	.....	.....
Machiasport	8	...	8	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Morris and Essex	45	...	45	.....	.....	.....	.....	80	.....	.....	.....	.....	100	
Mauch Chunk and R. Run	36	...	36	.....	.....	.....	.....	..	.....	.....	.....	.....	136	
Mine Hill & Sch. Haven	25	...	25	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Mount Carbon	7	...	7	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Mt. Carbon & Pt. Carbon	2 $\frac{1}{2}$	...	2 $\frac{1}{2}$	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Mill Creek	6	...	6	.....	.....	.....	.....	..	.....	.....	.....	.....	.....
Montgomery & W. Point	67	...	67	.....	.....	.....	.....	..	.....	.....	.....	.....	.....

Railway Share List.

ON A PAR OF \$100 ACCORDING TO THE LATEST SALES.—CORRECTED EVERY WEDNESDAY.

AMERICAN RAILROAD JOURNAL.

Saturday, July 7, 1849.

TO THE PUBLIC.

For the purpose of adding as far as possible to the usefulness of our Journal, we have secured the services of several gentlemen who will regularly furnish for its pages, articles upon subjects to which it is devoted, which come within the range of their professional pursuits. Our object is to promote, as far as in our power, the public works in this country, and of the various mechanical sciences which are intimately connected with their progress. And while as conductors of a public journal, we shall endeavor to impart all the instruction in our power, we wish to make our Journal the medium of communication of those persons interested in the same pursuits with ourselves, and would invite from correspondents, discussions upon the various topics which appear in our Journal. We shall weekly devote a part of it to the discussion of newly granted patents and inventions in the arts, and shall be very happy to answer any questions from persons who may be desirous of patenting or making public their inventions, and to aid as far as possible in rendering them valuable to the inventors, at the same time reserving to ourselves perfect freedom in the expression of our convictions as to the value of such improvements.

In this connection we are happy to introduce to our readers Mr. Hewson, who is to be hereafter a regular contributor to the Journal in the department of Civil Engineering. We know of no man better fitted for this duty; and Mr. Hewson brings to it a most critical scientific education united with long experience as a practical engineer, and we feel fully warranted in calling careful attention to the contributions of his pen.

American Railroad Journal.

TO THE READER.

The undersigned, in coming before the readers of the American Railroad Journal, begs leave to state briefly the plan by which he proposes to regulate his intercourse with them.

He enters on the management of that department of the Journal falling within the province of Civil Engineering and the Correct Sciences. He will divide his business into these heads:

To give, from time to time, tables and formula of the results of experiments applicable in construction and the mechanic arts generally—tables of the strength of materials, the elasticity of steam and the like;

To review books on subjects falling within the ground he takes in the conduct of the Journal; and in this as in all other cases to aim at something practically useful;

To canvass all questions arising in the progress of mechanical science here and in Europe; and to do so in a manner removed as much as possible from the embarrassments arising to some readers by the introduction of the higher calculus.

These are the heads under which the undersigned intends to communicate with the reader. He will now add to this general statement only the request that, for the benefit of the profession and the public generally, inventors will have the goodness to forward to this office a plain statement accompanied by the results of experiments that have been made in the case of such of their improvements, and if convenient a detailed drawing, showing the proportion of the several parts, the manner of working

etc. as may be of direct interest to the civil engineer.

M. BUTT HEWSON,
Civil Engineer.

American Railroad Journal Office, {
New York, July 6, 1849. }

TO THE SUBSCRIBERS OF THE
AMERICAN RAILROAD JOURNAL.

The following is the only apology we can give our readers for not receiving their papers of the 23d ult., until after they were due.

The papers were deposited in the Post Office in this city as usual, and we supposed were regularly forwarded, until the edition of the 30th ult. was taken to the office, where the papers of the week previous were found still remaining in the office. This was the first intimation we had that the they were not forwarded. Upon ascertaining these facts, we immediately addressed the Post Master a note, of which the following is a copy:

RAILROAD JOURNAL OFFICE, {
54 Wall st., July 2, 1849. }

SIR:—I learned on Saturday last, with surprise, that the edition of the Railroad Journal of the week previous had not been forwarded to its subscribers, but still remain in the Postoffice in this city.

I should be pleased if you would inform me by what authority the papers were retained.

I have the honor to be, &c.,
H. V. POOR,
Editor Am. R. R. Journal.

To Wm. V. Brady, Esq., {
P. M. N. York City. }

To this note, which we sent directly to the Post Master, we have received no reply!

With this simple statement of facts, we leave the matter before the public.

We did not receive the article by C. T. J. on "Steam Boiler Explosion" in season for this week's number.

Railroad to the Pacific.

The magnitude and importance of our newly acquired possessions on the Pacific, their rapid increase in population, and the obstacles which the immense extent of intermediate territory present to an easy communication between the extremes of our country, have turned general attention to ascertaining the best route, and devising the best mode, by which this communication can be opened and sustained.

From military considerations, united with a desire to develope our resources and promote the settlement of the country, it is considered indispensable that the route selected should pass through our own territory; and as water communication is impracticable, the plan of a railroad is universally adopted as the only feasible one to secure the object in view.

The plan of a railroad being adopted, the great questions to be considered, are the route to be selected, and how the means shall be obtained for its construction. Upon these points we must expect an infinite diversity of opinion. Every town in the country will desire to be on the line of the road, and every motive that interest and local prejudice can suggest will be appealed to. It becomes important therefore that these questions should be fully discussed in all their bearings, for the purpose of eliciting all evidence that may exist as to the superiority among the routes proposed, and developing the best plan to be adopted to secure the construction of the road.

The termini of a great line of railway to connect the Atlantic and Pacific must in the end be determined by the wants and necessities of trade and commerce. These have already pointed out New York as the eastern terminus. This city must always remain the commercial emporium on the Atlantic coast, and a railroad, crossing the Rocky Mountains, running east, as soon as it strikes the Mississippi valley, will seek this city by the most direct and feasible route, guided by the same causes that has constituted it the commercial centre of the Union. Other Atlantic cities, from their great commercial importance, will be connected with it by branches, but the great trunk line must run direct to New York, and should Congress adopt any different route than the one indicated, it would cease to be the route of commerce as soon as commerce should acquire sufficient strength to construct a road better adapted to its wants.

We have not the guide of experience in determining the western terminus of the road. It must be either the port of San Francisco or Puget Sound. At the present time the public mind undoubtedly points to the former port as the one to be selected.—The great excitement caused by the discovery of gold in California, attracts a vast emigration to its shores, and is drawing away the few adventurers who settled in Oregon before these discoveries.—Large towns will grow up on the Bay of San Francisco, and it will become the seat of an extensive commerce, before Oregon shall attract any further attention from our people, and should a favorable route be found in this direction, we should have no doubt of its being selected as the Pacific terminus. Whether it would always remain the great commercial emporium on the Pacific is by no means certain. We do not yet possess sufficient facts as to ultimate resources of our western possessions to determine this point, nor have we sufficient knowledge as to the feasibility of the rival routes by which these points are to be reached, to determine which is entitled to the preference, or in fact, that either are practicable when judged by the ordinary evidence that justifies the construction of a road. All the evidence we possess are the elevations indicated by the barometer, and the general observations of travellers passing over the routes. These may be favorable and the road still impracticable. The first step that Congress should take, should be to institute a suitable commission for the purpose of ascertaining the distance, grades, nature of the soil, and the capacity of the country over which the road is to pass, to sustain a population, and furnish materials for building and sustaining the road, the obstacles interposed by the water courses, etc., etc. In fact, government should do just what a prudent individual or company would do, before commencing work; first ascertain precisely what is to be done, and then determine whether the result to be accomplished will justify the outlay. Individuals who should adopt any other course would instantly lose all the confidence of the community. The great mistakes that have been committed in connection with our public works, have arisen from a want of thorough and critical surveys before commencing work. Yet in the discussions of this subject, both in and out of Congress, these considerations seem entirely lost sight of, and every person having fixed upon what he considers the proper termini, looks upon all the intervening space as mere plastic materials in his hands, to be moulded by the action of his will, into such form as he may wish to give it.

But when we consider how lines of a few hundred miles in extent in the old settled States have

baffled for years the efforts of the most skilful engineer, backed by the energies of a whole State, how little can we estimate the difficulties of a route of twenty-five hundred miles in extent, surmounting a range of mountains at an elevation of over 7000 ft., crossing immense water courses, and traversing a desert more than 500 miles in extent. Yet most people look upon the construction of such a work as mere past time, and individuals among us, offer single handed, to construct this work by aid of grants of land from Government alone, and profess themselves ready to commence its construction, before even an engineer has raised his theodolite in the field!

In saying what we have said, we do not wish to be understood as throwing any obstacle in the way of this great work. We wish to encourage it in every way in our power, and we can do this no more effectually than by indicating the true policy to be pursued with a view to success. The previous preparation should bear proportion to the magnitude of the undertaking. If we commence with insufficient knowledge as to the nature of the difficulties to be encountered, we shall certainly fail in the attempt; and if we miscalculate the results that would follow from its completion, its construction might be a still greater disaster than its abandonment, by involving the loss of greater capital. We propose, therefore, to examine the various plans for the construction of this work, to see how far they are in accordance with the rules we have laid down as our guide in its construction.

To be Continued.

Massachusetts Stocks.

The following is a table of dividends paid in some of the leading Massachusetts stocks on the second instant:

When paid.	Stocks.	Div.	Capital.	p. c.	Amt.
June 27	Cabot Man. Co	\$500,000	3	\$15,000	
do 27	Chicopee do	700,000	3	21,000	
do 28	Taunton Branch railroad	250,000	4	10,000	
July 2	Western railroad	5,150,000	4	206,000	
do 2	Fitchburg railroad	2,650,000	4	106,000	
do 2	Boston and Lowell railroad	1,830,000	4	73,200	
do 2	B. & Prov. railroad	3,160,000	3	94,800	
do 2	Bos. and Wor. do	4,500,000	3	135,000	
do 2	Dorchester & Milton railroad	130,000	3	3,900	
do 2	Fall River railroad	1,000,000	3	30,000	
do 2	Nashua Manufac. Co.	1,000,000	4	40,000	
do 2	Jackson do	480,000	4	19,200	
do 2	Lowell do on 1300 shares old stock, \$20 per share	26,000			
do 2	Stark Mills	1,000,000	3	30,000	
do 2	Cocheco Manufac. Co. on 2000 shares, \$26 per share	52,000			
do 2	Salmon Falls do	500,000	4	20,000	
do 2	Am. Insurance Co.	300,000	6	18,000	
do 2	Franklin do	300,000	6	18,000	

Dauphin and Susquehanna Railroad and Coal Company.

The kindness of a friend enables us to present the following interesting account of one of the great coal fields of Pennsylvania, and the works in progress to bring its treasures to market.

This road, which is designed principally for the transportation of coal, commences at Dauphin, Dauphin Co., Penn., (a flourishing village on the north shore of the Susquehanna river, at the mouth of Stony Creek, about 8 miles above Harrisburg,) and follows the valley of that creek in an easterly direction for a distance of 16 miles, to the Yellow Spring Gap.

The route is very direct—the greatest departure from a straight line uniting the termini being only 2500 feet. The curves are generally of a large radius, and there are none less than 1000 feet. The maximum grade is 37 feet per mile, and every gradient descends towards the Susquehanna river in the direction of the trade. The road-bed will be formed of material unusually favorable for permanency, the greater portion being cemented earth, gravel and shale rock. The surface of the ground along the route is very uniform, requiring no deep excavations, or high embankments; and the whole quantity of material to be removed in forming the road-way will not exceed 325,000 cubic yards.—There will be only one road crossing, and only one structure of a perishable character—a bridge of 90 feet span—upon the whole line. The side streams, although numerous, are quite small, and in no case will culverts be required exceeding 3 feet span.—The gauge is to be of the usual width, 4 feet 8 in. The iron rail is of the H pattern, weighing 45 lbs per yard, and will rest upon cross-ties not exceeding 18 inches between bearings.—A sub sill will be used when deemed necessary to secure a firm and uniform bearing.

The location of the line was commenced in March last, and the contractors, Philip Dougherty and G. M. Lauman, Esqs., commenced their operations in April. The grading upon the main line is now more than half completed, and the iron rails will be furnished in July. The cross-ties and other timber are being delivered, and it is supposed the road will be finished and in operation in November next, at a cost for grading, superstructure, &c. exclusive of land, buildings and machinery for operation, of not exceeding \$10,000 per mile.

The proprietors of this road own about 10,000 acres of land which extends from Dauphin, including a large portion of the territory of that village, along Stony Creek for about 18 miles, embracing the whole of the western termination of the southern coal field of the state of Pennsylvania.

The capital of the company, including railroad stock, is \$800,000—divided into 16,000 shares of fifty dollars each.

The great value of their property consists in the fact that they control the whole of the territory east of the Cumberland or Allegheny region that contains a peculiar and extremely valuable class of *transition and semi-bituminous coal*, which burns with a bright beautiful flame, makes excellent coke, generates steam with great rapidity, and is admirably adapted for all manufacturing and steaming purposes. Its qualities have been tested by some of the most eminent operatives of the country, and unqualifiedly pronounced inferior to none.

The first, or Southern Coal Field, extends from the Lehigh river, at Mauch Chunk, in nearly a western direction for a distance of about 65 miles, to the Susquehanna river at Dauphin. The western termination is an elevated mountain range, varying from one to seven miles in width, some 1600 feet above tide, presenting its side towards the various depots on tide water. The coal veins run in the direction of the mountains at various angles of inclination, from one extreme to the other. Commencing at Mauch Chunk we find the hard anthracite; at Pottsville and Pine Grove it becomes more soft, and at Rausch Gap, 21 miles from the Susquehanna it changes to a free burning coal. From this latter point it gradually becomes more and more bituminous as we approach Dauphin; each gap, of which there are two, Yellow Springs and Rat-

ting Run, affording different qualities, and thus furnishing every variety requisite for economical uses.

The western termination of this coal field is known as Short Mountain. It is an unbroken ridge, increasing in width and elevation from the Susquehanna to Big Flats, about 9½ miles east of Dauphin, where it divides into two ridges known as Third or Sharp, and Fourth Mountains. At Rattling Run and Yellow Springs, the Third Mountain has deep transverse depressions, through which pass small streams draining the valley which lies between the two ridges.

At each of these depressions or "Gaps" the coal veins, (which are nearly vertical at Yellow Springs and Rattling Run,) are cut through at right angles to their general direction, affording cheap and perfect drainage, and superior facilities for penetrating and working the veins with great economy. From the ends of the veins thus exposed, the coal will be mined, put upon self-acting inclined planes, and carried to the main road at the foot of the mountain. Thence it will be transported to Dauphin, transferred to boats, and forwarded to any point via Pennsylvania and Tide Water Canals.

The cost per ton for mining and transporting to the principal markets will be as follows:

Cost per ton delivered at Dauphin	\$1 00
" "	Havre de Grace.... 1 94
" "	Philadelphia 2 54
" "	New York..... 3 19
" "	Boston 3 69

The distance from the mines to any one of these points is about 100 miles less than from any other coal field having coal of the same quality.

A few years since several veins were opened at three different localities upon his property under the supervision of R. C. Taylor, Esq., who devoted considerable time to a thorough examination of the estate. The points selected were Big Flats, Rattling Run and Yellow Springs Gap, the former being 9½, the second 12, and the third 16 miles from Dauphin.

From the veins proven by him at these points it is estimated the supply *above water level* equals 10,200,000 tons, which, at the rate of 1,000 tons per day, making 300 days in the year, would afford constant and profitable employment for the road for 34 years, without mining below ground.

Simultaneous with the commencement of the construction of the road, the company began operations at the mines at Yellow Springs Gap, with the view of being prepared to supply in part, the great and increasing demand for their coal, as soon as their road should be completed. Several of the old veins have been re-opened, and a large force is constantly employed driving gangways, and mining coal from the slopes. Quite recently, under the advice and direction of Mr. Jno. R. Garland, who has the charge of the mining department, a tunnel has been started near Yellow Springs Gap, at right angles to the coal veins and 130 feet below the depression in the mountain at that point for the purpose of penetrating all the known and unknown veins in that locality. By this means the water level will be virtually lowered 130 feet, the facilities for mining greatly improved, and the supply of coal very materially increased, estimated equal to 1,500,000 tons from the veins already proved.

At the last session of the Legislature of the state of Pennsylvania, an act of incorporation was granted to an association of persons under the title of "The Pequa Railroad and Improvement Company." Their charter covers about 32,000 acres of land,

commencing at the eastern boundary of the Dauphin and Susquehanna Coal Company and extending eastwardly for about 10 miles, comprising all the coal land of Third and Fourth Mountains for that distance. The coal is generally a pure anthracite. Upon this estate, Third Mountain has three transverse depressions similar those heretofore mentioned, known as Rausch, Gold Mine, and Black Spring Gaps. At the former gap, no less than 15 remarkable veins, ranging from 3 to 14 feet in thickness, 11 of which average 7 feet, have been discovered, making an aggregate of over 90 feet in thickness of pure anthracite, extending the whole length of the property and to an unknown depth. It is estimated that the quantity obtainable above water level without resorting to tunneling is equal to 18,000,000 tons.

This company propose constructing a railroad from Rausch Gap to the eastern terminus of the D. and S. railroad, a distance of 4½ miles; also, from the same point over Second Mountain to the valley of the Union Canal, about the same distance; thus affording two outlets for the mineral products of both corporations and creating a business fully equal to the capacity of the D. and S. railroad.

The officers of the Dauphin and Susquehanna Coal Company, who are constructing this road, are as follows:

DIRECTORS:

Henry G. Stebbins, of New York.
M. Morgan, do
C. N. Heckscher, do
N. Hendricks, do
Samuel Jaudon, do
J. Foster, Jr., do
Isaac Lea, of Philadelphia.
Wm. A. Blanchard do
Presley Blackstone, do

Henry G. Stebbins, President.
M. Morgan, Treasurer.
Ashbel G. Jaudon, Secretary.
D. Morton, Chief Engineer.
Jno. R. Garland, Superintendent and Agent.

Ohio.

Mad River and Lake Erie Railroad.—A recent election of Directors of this road resulted in the choice of Samuel Henshaw, Henry Simmons and Mathias Sawyer, of Boston; D. A. Neal, of Salem; E. Lane, E. F. Osborne, and F. Follett, of Sandusky City; M. Hunt, of Clark county; S. Keener, of Champaign; and F. Odlin, of Dayton. The Directors, on behalf of the State of Ohio, are Sampson Mason, of Springfield; Rice Harper, of Sandusky City, and Mr. Stoddard of Dayton. The Urban Citizen says:—"We learn that the company declared a dividend of 12½ per cent. in stock of the company. That is, every eight shares of stock held by an individual, will entitle him to an additional share; and on all fractions of shares, under or over eight, a dividend of 7½ per cent. in money. We also learn that the net earnings of the company, up to the 15th of March last, amounted to about \$160,000. A handsome business."

Virginia.

Orange and Alexandria Railroad.—We understand from the president of the Orange and Alexandria railroad company, that at the meeting of the president and board of directors of the company, held at Fairfax Court House on the 22d ult., an order was passed directing the second party of engineers to begin their work in the field at Gordonsville on the 17th of July next, and prosecute the surveys and examinations of the several routes proposed for the road, taking the points named in the charter, in a direction for Alexandria.

The first party of engineers now in the field are

prosecuting their labors with vigor, commencing at Alexandria, and directing their work towards Culpeper C. H., exploring and enamining the various routes through the country as they progress.

Michigan.

Southern Railroad.—The directors of the Southern Michigan railroad elected last week, are Geo. Bliss, Springfield, Mass.; Charles Butler, N. Y.; Hugh White, Saratoga, N. Y.; Charles Noble, Monroe, Mich.; Joel Rathbone, Albany, N. Y.; Chas. Seymour, Canandaigua, N. Y.; Edwin C. Litchfield, N. Y.; Elisha C. Litchfield, Detroit.

Pennsylvania.
Ohio and Pennsylvania Railroad.

A very large number of proposals have been received for the grading and bridging of the Ohio and Pennsylvania railroad, from Beaver to the State Line; and many experienced and energetic contractors, from other public works, have attended the lettings.

The ceremony of breaking ground on this road took place on the 4th inst. at the State Line. Governors Ford of Ohio, and Johnston of Pennsylvania, were expected to be present, and a grand demonstration was anticipated.

In order to have time to compare and deliberate upon so large a number of bids, and to afford an opportunity of consultation with the directors residing in Ohio, the allotment of the contracts will not be made till after the celebration. The contractors, to whom the work is allotted, will be notified by letter, and a list of them will be published in the Pittsburgh papers, probably on Saturday, the 7th of July.

Susquehanna and Tide-Water Canal.

The annual report of this company states that its receipts, for the year ending December 31st, 1848, were \$138,013 66—an increase of \$6,073 79 over the year previous, when this work, in common with others through the country, felt the impulse given to trade by the immense grain exportation to Europe. A still larger increase is expected for the present year, in consequence of the completion of two important tributaries, the Wiconisco canal and Lykens Valley railroad. The company were enabled to pay the State of Maryland in 1848, \$50,000 on account of interest, and the directors are encouraged to think that in a few years the current interest upon the whole debt will be regularly met.

The strength and durability of the work, says the Harrisburg Intelligencer, were fully and favorably tested by the freshets of the present season, and the canal is now in fine working order. Its original cost, including the Conestoga connection was \$3,268,554 83.

Opening of the Pennsylvania Railroad.—The work of this gigantic improvement is now nearly finished as far as Lewiston. It will be opened to Middletown, thirty miles beyond Harrisburg, on or about the 26th inst., and as far as Lewiston in a few weeks after. The bridge over the Susquehanna, 5 miles above this place, is almost ready for crossing.

Massachusetts.

Charles River Branch Railroad.—At a meeting recently held, this company was organized by the choice of Messrs. Otis Pettee, Marshall S. Rice, Edgar K. Whitaker, Elijah Perry, and William M. Stedman as Directors who subsequently made choice of Otis Pettee, Esq., as President of their Board and of the corporation, and of S. F. Plimpton, Esq., as Clerk.

Lexington Railroad.—The annual meeting of the stockholders was held on Wednesday afternoon at the Lexington House. After the usual reports had been presented, the following gentlemen were elected Directors for the ensuing year, viz: Charles Hudson, Sam'l. Chandler, James Dana, James Gould; S. S. Littlehale, Simeon Butterfield, Geo. W. Rob-

inson. Among the votes passed by the corporation was one requiring the new Board of Directors to devise and report at an adjourned meeting a plan for the payment of the company's bonds falling due in November next.

Newburyport Railroad.

This work is progressing rapidly. One-third of the road, and that by far the hardest portion of it, is now graded, and the cost has come within the estimates. From the moment of its opening for travel and transportation, it will be continually developing new advantages and facilities not only to the people of Newburyport, but to occupants or owners of real estate along the line. In a short time the whole line will be located and the work commenced on the other end of the road, which is mostly embankment. The next assessment of ten per cent. is due on the 10th of July, and if it is promptly met, the work will go on successfully and economically, and secure its extension and communication with the Boston and Maine road. An additional subscription of \$20,000 is desirable to finish the road without incurring a debt.

Maryland.

Business of the Baltimore and Ohio Road.
The following memoranda of the business upon the Baltimore and Ohio railroad during the month of May, 1839, we find in the Patriot:

The transportation eastwardly into the city of Baltimore in some of the principal staples has been as follows:

Flour	31,573 barrels
Coal	6,973 tons
Tobacco	1,273 hhds
Grain, Meal, &c.	330 tons
Pork and Bacon	52 "
Iron	1,125 "
Lard and Butter	12 "
Hogs and other Live Stock, viz:	
Hogs, in number	10,250
Horses and Mules	63
Horned Cattle	81—10,394 all
Revenue for the month has been as follows:	
Main Stem	\$34,952 72
Wash. branch	\$66,674 23
	\$101,626 95
	Wash. branch.. 18,855 78
	4,921 15
	23,776 93
Total	\$53,808 50
	\$71,595 38
	\$124,403 88

Baltimore and Ohio Road.—The following table will show the comparative aggregate receipts of the Baltimore and Ohio railroad since the 1st of October last, when the fiscal year of the company commenced, compared with the aggregate receipts of the corresponding months of the previous year:

	1848.	1847.
October	130,907 21	125,452 74
November	121,892 79	129,731 56
December	145,611 60	120,967 43
	1849.	1848.
January	102,565 82	110,418 51
February	106,052 18	116,131 63
March	170,963 54	150,030 43
April	126,163 35	122,701 65
May	125,403 88	113,611 63
	1,029,560 34	989,045 58

This shows an increase in receipts in the eight months since the 1st of October, over the corresponding months of the previous year, of \$40,514 76—which, allowing a relative increase for the four remaining months, would make an aggregate increase in receipts of over \$60,000 for the year.

This gratifying fact is evident alike of the prosperity of the road, and of the vast importance it is to the business of the city, and to the country through which it penetrates and to which it extends.—*Baltimore Patriot.*

New Hampshire.

The following is a list showing the amount of railway already constructed and running in this state:

Name of road.	miles running.
Concord railroad	34
Nashua and Lowell, (in N. H.)	6
Nashua and Worcester, "	15

Eastern, (in N. H.)	20
Boston and Maine	40
Wilton railroad, (to Danforth's Corner)	8
Cheshire, (in N. H.)	40
Sullivan Co.	25
Northern, (including the Bristol branch)	80
Montreal, (to Meredith Village)	38
306 miles finished.	
Length of line in progress and unfinished.	
Montreal, (between Meredith and W. Rumney)	23
Manchester and Lawrence	25
Concord and Portsmouth, (including branch to Manchester)	60
N. H. Central, say	25
Concord and Claremont	25
Contocook Valley	15
second class, 198 miles.	—
Cocheco, Great Falls and Conway, 25 miles in progress.	
Making 504 miles either completed or in a state far advanced towards completion.	
The following are lines or parts of lines chartered or projected but not in progress.	
Concord and Montreal, from West Rumney to mouth of Passumpsic, about	40
White Mountains	38
Suncook Valley	17
Concord and Claremont, about	25
Ashuelot	23
Petersborough and Shirley	23
Cocheco, Great Falls and Conway	75
Wilton	7
East Wilton	40
third class 288 miles.	—
Total number of miles	792

This last list does not embrace the section of the Atlantic and St. Lawrence road, which is to run through the north part of this state, the length of which has not yet been determined. The probability is, that two-thirds of the projected lines will be soon commenced and completed with reasonable despatch. This will give New Hampshire 646 miles of railroad; a much greater length of line than any state in the Union in proportion to her population, and to her territory if we except Massachusetts.

There will have been expended in this state when the roads in progress shall be completed \$17,640,000, estimating their cost at \$35,000 per mile. The construction of the roads projected and likely to be immediately commenced would require the additional sum of \$6,720,000, making an aggregate of \$24,360,000.

This immense sum will convey some idea of the extent to which roads have been pushed in New England, when compared to other sections of the country.

Northern Railroad.

From an abstract of the report of this great New Hampshire railroad company, it appears that the capital stock of the corporation is \$2,600,000, of which the sum of \$2,548,905 87 has been realised. The nominal stock of the Franklin and Bristol, now united with the Northern road, is \$200,000; but only about \$156,900 has been paid in; and it appears from the report that in uniting with it, the Northern takes it at something over \$236,000, having paid and assumed debts to the amount of \$80,000. For this it has 335 shares of the stock unsold, and a claim for \$6,753 10 due on stock sold—making \$10,253 10, reckoning the stock at par. The receipts from both roads during the past year are stated to be—passengers, \$158,109 39; for freight, \$242,558 76; for mails, express, rents, &c., \$9,287 79. Total, 408,655 94. Deduct—paid lower roads, \$122,068 11; expenses of running and railroad tax, \$119,292 29. Total, 241,378 40. Net earnings, \$166,977 54; deduct November dividend 3 1-2 per

cent, paid, \$92,978 66; earnings not divided, \$74,298 88. This is the sum that would have been divided among the stockholders at this time, had it not been for the debts assumed by the Bristol road. The net earnings of both roads for the year were more than 6 per cent. on the capital stock paid in.

The liabilities of the corporation, exclusive of the above "earnings not divided," are stated to be \$129,978 46. Their assets are stated to be \$178,783 56, in which sum is included real estate that may be sold \$17,604 00; stock in machine shop, \$11,390 02; Bristol road stock at par, \$33,200; and fuel on hand, 28,198 14.

The number of passengers carried in the cars is stated to be 128,544 1-2; number of tons of freight, 73,442; miles run by passenger trains, 97,901; by freight trains, 62,198. Length of Northern road, 69 miles and 1251 feet; length of double track at stations, 3 miles; length of Bristol road, 12 1-2 miles. Number of passengers over the road to and from Concord, 22,758; Manchester, 16,782 1-2; Nashua, 5,480; Lowell, 19,784 1-2; Boston, 27,475 1-2; and all other way stations, 36,246.

Georgia.

Reduction of Fare.—The Georgia Railroad company has reduced the fare to three cents a mile from the 15th of June to the middle of October on all local travel. We trust that this arrangement will prove advantageous to the company.

South Western Railroad.—The Macon Journal & Messenger says: "We learn that during the month commencing on the 7th of May, and ending on the 7th of June, there was employed on this work a force equal to 570 hands. The excavation amounted to 36,498 cubic yards, and embankment to 42,626 cubic yards. The estimate for the month's work, amounts to \$11,690, being an average of \$20 51 to the hand, including cars, etc., and of 25 03 to the hand, not including cars. The total amount of excavation thus far accomplished on the work, is equal to 446,347 cubic yards, and of embankment 463,444 cubic yards: being equal to 24 1/2 miles average of the entire distance between Macon and the Flint river."

East Tennessee and Georgia Railroad.—The Dalton Eagle says: "According to the notice given our last, a large number of the citizens of Dalton, and the surrounding country, assembled at the place designated, on Wednesday afternoon last, for the purpose of manifesting the interest which they feel in the great enterprise, and of witnessing the ceremony of 'breaking ground' at the junction of the East Tennessee with the Western and Atlantic railroad. The occasion was an interesting and important one, and one we opine that will long be remembered as a great event in the history of our town, whether it be for weal or woe."

Atlanta and Lagrange Railroad.—This company was duly organised at Newnan on the 24th May, by the election of the following gentlemen as directors, viz: John P. King, Augusta; Richard Peters, Atlanta; W. P. Menifee, Campbell county; Doctor Terrell and Major Berry, Coweta; J. McLendon, W. F. Fannin, of Troup. John P. King was chosen president of the company, and L. P. Grant, engineer. It is stated by the Atlanta Intelligencer that a portion of the work will be placed under contract at an early day.

Maine.

The Bangor and Piscataquis Railroad.—The Bangor and Piscataquis railroad is now being laid with a T rail in place of the flat bar.

There are several railroad projects on foot, some of which already have charters, and others are now asking them of the legislature. The corporators in the *Androscoggin Railroad Company* have called a meeting for organization, and have petitioned for the extension of their chartered privileges to allow them to carry their road to Farmington. The route of this proposed road is so favorable that we see no reason why it will not be put in progress at once by the people on the line.

The town of Orono has petitioned the Legislature for authority to take stock to the amount of

\$25,000 in the Bangor and Orono railroad, the money to be expended within the limits of the corporation. If this authority is granted, it is supposed the road will be put in progress.

The application for a charter for a railroad from Lewiston Falls to Rumford Falls is opposed by the Buckfield railroad company and the corporators of the Androscoggin railroad company.

A meeting of the stockholders of the Kennebec and Portland railroad was held at the company's office in Gardiner on Wednesday last. A good number of the stockholders and friends of the road were present, and a fine spirit prevailed. Energetic speeches were made, and the word was, enthusiastic and irresistible, the *whole road* must be finished and put in operation with all possible despatch.

The vote in February, creating new 30 per cent. stock was rescinded, and 4000 shares of new stock at par were made, amounting to \$400,000, upon which an interest of 10 per cent. per annum is guaranteed. One eighth of the stock, or \$50,000 was taken on the spot, and there will be no difficulty in disposing of the remainder, as a considerable portion of the road, 23 miles, is all ready to go into operation and will begin to pay immediately. It is estimated (and all the expenditures of the road thus far have come within the original estimates) that this \$400,000 will grade the road the whole distance to Augusta, and put it into complete operation from North Yarmouth to Richmond village, in all thirty-eight miles.

North Carolina.

R. O. Britton, Esq., of Granville, has been appointed president of the Raleigh and Gaston railroad, vice T. J. Miller, resigned. The appointment of Mr. B. is said to be a most judicious selection.

The Salisbury Convention.

A great convention was held at Salisbury in North Carolina on the 14th ult., of the friends of internal improvements, to concert measures for the construction of the great line of railway from Goldsboro' to Charlotte, chartered at the last session of the legislature of that State, to the stock of which the State is to subscribe on certain conditions. A large number of delegates were in attendance from twenty-one counties, and in addition, Hammond Whitney, Esq., and Dr. E. C. Roberson appeared as delegates from Norfolk, Va. The meeting was organised by the appointment of Hon. John M. Morehead president, and Gen. Alex. McRay, W. Boyland, Dr. W. Holt, Col. Daniel Coleman and E. C. Roberson vice-presidents. A committee was then appointed to consider and report to the convention the general measures to be acted upon; who, after consultation, reported among others the following resolutions, which were unanimously adopted.

Resolved, That this convention heartily commends the spirit in regard to works of internal improvement, which characterised our last General Assembly, and that its members are especially gratified by the liberal provisions made by that body for the construction of the "North Carolina Railroad"—a work of the utmost importance to the trade and character of the State, and of almost vital interest to that extensive and productive region lying contiguous to, or within convenient distance of the proposed road.

Resolved further, That a subscription of one million of dollars by individuals being required before the company can be organised for the construction of this railroad, it is the duty of all patriotic citizens to use their best exertions to raise that amount of subscription; and the members of this body do agree to urge this subject upon their respective constituencies, neighborhoods and counties.

Resolved further, That the president of this convention appoint a county committee in each county immediately interested in the construction of the "North Carolina Railroad," consisting of three members, whose duty it shall be to appoint sub-committees in the various sections of their respective counties, to procure subscriptions to the capital stock in said railroad, and to take all other measures

which they may deem necessary to the promotion of this enterprise.

Resolved further, That in the event of the stock not being taken under the first advertisement, the executive committee, if deemed expedient, be requested to employ a suitable agent to travel, call meetings, address the people, solicit and receive subscriptions in and out of the state.

Resolved further, That a committee of two persons be now appointed by the president to inquire and report to this convention whether there be any, and if any, what number of individuals can be associated to subscribe the residue of the stock required to form the company, provided there should be a deficiency in the amount returned on the books of the commissioners aforesaid.

Resolved further, That it is the opinion of this convention, that the payment of five hundred thousand dollars required to be made according to the 36th section will be as well complied with by the execution of contracts for work and materials to that amount as by the payment of money.

Resolved further, That in order to accommodate the terms of payment for stock to the condition and convenience of our fellow citizens generally, the board of directors of the railroad company ought, and will be expected by this convention, in letting contracts for the work and materials of the same, to give a preference to stockholders who may offer to become contractors, in all cases where they propose reasonable terms, to be judged of by the said board, with the aid of the estimate of the engineer.

In relation to this road the National Intelligence says:—

The General Assembly of that state, in a spirit of liberality which it never before exerted to the same extent, granted a charter for incorporating a company to construct a railroad from Goldsborough, in the county of Wayne, by way of Raleigh and Salisbury, to Charlotte, in Mecklenburg county—a distance of about two hundred and ten miles—and agreed to subscribe to the stock of that company *Two Millions of Dollars* on behalf of the state, whenever individuals shall have subscribed *One Million of Dollars*, and paid up one-half of that sum. The eastern terminus, Goldsborough, is at the Neuse river, at the head of navigation, at the point where the Wilmington and Roanoke railroad crosses the stream, about fifty miles from Raleigh. Its Western terminus, Charlotte, is already the terminus of the Charlotte and South Carolina railroad, which starts at Columbia, (S. C.) and, running through Richland, Fairfield, Chester, and York districts, in South Carolina, and part of Mecklenburg county, in North Carolina, terminates, as above stated, at Charlotte. The counties of Cabarras, Iredell, Rowan, Davie, Davidson, Guilford, Randolph, Orange, Chatham, Wake, Johnson, and Wayne, that must constitute (very nearly) its track, are, in point of fertility and cultivation, not inferior to any part of the Atlantic states; and, when we consider their various towns and villages, with their schools, churches, banks, factories, and institutions for the dissemination of knowledge; with the University, which is highly prosperous; with the various officers, courts, &c., at Raleigh, (where it meets the Raleigh and Gaston railroad;) with the valuable gold mines in all the counties west of Orange; with the immense coal deposit in Chatham; surely few schemes have ever combined the elements of success in a more abundant degree.

The North Carolina papers represent that the very best feeling prevailed in the convention, and express no doubt of the stock being immediately taken, and that the road will be constructed with all reasonable despatch. We can see no reason why it should not, and we are much mistaken if this state is not equal to this effort, especially as it is the only public work of magnitude occupying her attention. The utility of this great work, the example of her sister cities, and the state pride involved in its completion are sufficient guarantees to our minds of its success.

Indiana.

A company has been organized to build a railroad from Lawrenceburg to Decatur county, there branching—one branch running north to Rushville,

and the other west, crossing the Madison and Indianapolis railroad at Edinburgh, through Morgan-town, Martinsville and Spencer, through the rich bottoms of Flatrock, Difwood, and White river, and the coal and iron beds, to the Wabash at Terre Haute. The counties through which this road will pass are among the most populous and productive in the state, and the direction of the road is such as to carry the trade to Cincinnati. Louisville is proposing, with Madison, a great attempt to secure the prize, by making an improvement in her own direction; but as yet nothing tangible has resulted.— Meanwhile, the opposition route has upwards of \$280,000 of its stock taken, and \$70,000 have been subscribed to another company, which must, when the work reaches a certain point, be merged into this. On the 17th of August next, 20 miles will be put under contract, and by next fall, 20 more—making 40 in all.

Jeffersonville Railroad.

In our paper of the 9th ult. we published an extract from a letter of a gentleman connected with the management of this road, giving an account of its progress, and of the general features of the road, direction, &c. Since then we have read the report of the Directors, and are now able to present a more exact statement of its grades, cost, and other characteristics.

The following is the table of distances and grades and the estimates of the cost of the entire line:

Table of Grades.

29 Miles	2665 feet Level.
4 "	160 " from level to 5 ft. p. m.
6 "	4860 " " 5 to 10 "
5 "	2880 " " 10 to 15 "
0 "	0 " " 15 to 20 "
10 "	1337 " " 20 to 23 "
9 "	4280 " " 23 to 26 4-10

66 miles 342 " total distance from Jeffersonville to Columbus.

Cost of Road.

For grubbing, grading & bridging 1st div. \$55,969.00

" " " 2d 61,466.00

" " " 3d 58,138.00

Total \$175,573.00

Estimated cost of superstructure 133,808.00

5808 gross tons iron rail, 56 lbs. per linear yard, say at \$53 per ton, delivered 307,824.00

\$617,205.00

Which is an average per mile of \$9,351.59. If to this be added for superintendence and contingencies 10 per cent. on the cost of grading and superstructure, the average per mile will be \$9,820, exclusive of turn-outs, way-stations, depots, road furniture, &c. &c.

In reference to the business prospects of the road the report goes on to say—

This road will effect a junction at Columbus with the Madison and Indianapolis railroad, which runs in a northwest course to Indianapolis. Between Columbus and Indianapolis several branches are in process of construction, and will soon be completed, throwing in the direction of that line a large increase of the products of the interior. Another branch in contemplation westward will furnish by your road and the connection referred to, the cheapest and quickest route by which access from the Falls of the Ohio, can be had with coal fields and iron beds of that region of the state. The Indianapolis and Terre-Haute railroad, penetrating the Wabash valley on the western border of the state, is under contract and will be urged to an early completion. The Lafayette railroad, leading from the state capitol to the Wabash and Tippecanoe valleys is also being constructed. The Indianapolis and Peru railroad striking the Wabash Canal in Miami county, in a good direction for Lake Michigan, and the Indianapolis and Bellefontaine road designed to connect with the roads in Ohio to Lake Erie, are both being constructed. The centre and northern portions of the state, unsurpassed for the fertility of the soil, will furnish by these roads immense quan-

tities of agricultural products, much of which will seek a southern or southeastern market. For this portion of the business, this road cannot have a successful competitor.

It will be connected with others extending their ramifications into nearly every state in the Union; it will form a portion of one of the main routes which will hereafter be the principal means of communicating between the north and the south, extending through ten degrees of latitude; it will afford facilities for a reciprocal interchange of dissimilar products, superior to any line of the same extent on a parallel of longitude; it will offer a choice of markets to a multitude of producers in different climates of our own country; it will give a new impetus to agricultural and commercial pursuits, and the largely increased trade which will result must be annually augmented by the growing prosperity of our country; and in a few years the business of this road will far exceed the expectations of its most sanguine friends.

The natural direction of trade is from north to south and from the south to the north. Hitherto, the larger portion of the surplus products of Indiana have found their way to a southern market.

And from the considerations presented, it cannot be doubted that a fair share of the products as well as travel, arriving at Columbus, will pass over your road.

The various roads alluded to in Indiana, are being pushed onward with an energy indicating strong confidence in their ultimate success and profit.—Cheered by the prosperity of the only road now in operation in the state, and which yields an annual income of not less than 15 per cent., there is nothing to discourage them. Mature investigation of the subjects briefly presented, must produce the irresistible conviction that this road offers extraordinary inducements for the investment of capital. It is deemed sufficient to say that if the stock of any of the roads alluded to will pay a handsome dividend, will pay equally as much.

Situation Wanted.

A Gentleman from Germany, who is familiar with the English and French languages, and who has for seven years been engaged in the study and practice of Engineering and the Superintendence of Public Works. Address

LEWIS BURYER,
2126
64 Avenue B, New York.

ENGINEERS.

Arrowsmith, A. T.,
Buckfield Branch Railroad, Buckfield, Me.

Bancks, C. W.,
Engineer's Office, Southern Railroad, Jackson, Miss.

Berrien, John M.,
Michigan Central Railroad, Marshall, Mich.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
New York and Harlem Railroad Extension,
Lithgow, Dutchess Co., N. Y.

Ford, James K.,
New York.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

Harry, P.,
Binghamton, New York.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Higgins, B.
Mansfield and Sandusky Railroad, Sandusky City, O.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Reynolds, L. O.,
Central Railroad, Savannah, Ga.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Robinson, James P.,
Androscoggin & Kennebec Railroad, Waterville, Me.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukee, Wisconsin.

BUSINESS CARDS.

To Railroad & Navigation Cos.

Mr. M. BUTT HEWSON, Civil Engineer, offers his services to Companies about to carry out the surveys or works of a line of Navigation or Railroad. He can give satisfactory references in New York City as to his professional qualifications; and will therefore merely refer here to the fact of his having been engaged for upwards of two years conducting important Public Works for the British Government.

Communications will find Mr. Hewson at the office of the Railroad Journal, 54 Wall Street, New York.

J. T. Hodge,
EAGLE RIVER P. O., LAKE SUPERIOR.

James Laurie, Civil Engineer,
No. 23 RAILROAD EXCHANGE, BOSTON, MASS.
Railroad Routes explored and surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.

October 14, 1848. 6m*

James Herron, Civil Engineer,
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE

HERRON RAILWAY TRACK.
Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Cruse & Burke,
CIVIL ENGINEERS, ARCHITECTS AND SURVEYORS,
Office, New York State Institution of Civil Engineers,
STATE HALL, ALBANY, N. Y.
Drawings, specifications and surveys accurately ex-
ecuted. Pupils instructed theoretically and practical-
ly at a moderate premium.

May 26, 1849.

To Railroad Companies.
—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.
NORRIS' LOCOMOTIVE WORKS,
SCHEECTADY, NEW YORK,
Are Manufacturing Wrought Iron Driving, Truck,
Tender, and Car Wheels—made from the best Ameri-
can Iron. Address E. S. NORRIS.
May 16, 1849.

Manning & Lee,
GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.

Agents for Avalon Railroad Iron and Nail Works.
Maryland Mining Company's Cumberland Coal 'CED'
'Potomac' and other good brands of Pig Iron.

IRON.
THE NEW JERSEY IRON CO'S WORKS AT
Boonton, are now in full operation, and can exe-
cute orders for Railroad Bars of any required pattern,
equal in quality to any made in this country. Apply
to J. F. MACKIE,
Nos. 85 and 87 Broad St.
New York, June 8, 1849.

Railroad Iron.
OF approved T patterns, weighing 56 to 60 lbs. per
lineal yard, made by the best English manufac-
turers, and under our own specification and inspection.
In store and to arrive. For sale by
DAVIS, BROOKS, & CO.,
68 Broad street.
New York, June 1, 1849. If
The above will favorably compare with any
other rails.

American Cast Steel.
THE ADIRONDAC STEEL MANU-
FACTURING CO. is now producing, from Ameri-
can iron, at their works at Jersey City, N.J., Cast
Steel of extraordinary quality, and is prepared to
supply orders for the same at prices below that of
the imported article of like quality. Consumers
will find it to their interest to give this a trial. Orders
for all sizes of hammered cast steel, directed as
above, will meet with prompt attention.
May 28, 1849.

Monument Foundry.
A. & W. DENMEAD & SON,
Corner of North and Monument Sts.—Baltimore,
HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
In complete operation, are prepared to execute
faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw
Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, war-
ranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggoted axle, fur-
nished and fitted up for use, complete

Being provided with Heavy Lathes for Boring
and Turning Screws, Cylinders, etc., we can
furnish them of any pitch, length or pattern.
Old Machinery Renewed or Separated—and
Estimates for Work in any part of the United States
furnished at short notice.

June 8, 1849.

**SPRING STEEL FOR LOCOMOTIVES, TEN-
DERS AND CARS.**—The subscriber is engaged
in manufacturing spring steel from $1\frac{1}{2}$ to 6 inches in
width, and of any thickness required: large quantities
are yearly furnished for railroad purposes, and whenever
used its quality has been approved of. The establish-
ment being large, can execute orders with great
promptitude, at reasonable prices, and the quality war-
anted. Address J. F. WINSLOW, Agent,
Albany Iron and Nail Works.

Pig and Bloom Iron.

THE Subscribers are Agents for the sale of numer-
ous brands of Charcoal and Anthracite Pig Iron,
suitable for Machinery, Railroad Wheels, Chains, Hol-
lowware, etc. Also several brands of the best Pudd-
ling Iron, Juniata Blooms suitable for Wire, Boiler
Plate, Axe Iron, Shovels, etc. The attention of those
engaged in the manufacture of Iron is solicited by
A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Railroad Iron.

RAILROAD IRON & LOCOMOTIVE TIRES
imported to order, and constantly on hand, by
A. & G. RALSTON,
4 South Front St., Philadelphia.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO
contract for the delivery of English Railroad Iron
of favorite brands, during the Spring. They also re-
ceive orders for the importation of Pig, Bar, Sheet, etc.
Iron. THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1849. New York.

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, AL-
LEGHANY COUNTY, MARYLAND, having recently passed
into the hands of new proprietors, are now prepared
with increased facilities, to execute orders for any
of the various patterns of Railroad Iron. Communica-
tions addressed to either of the subscribers will have
prompt attention. J. F. WINSLOW, President

Troy, N.Y.

ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.

November 6, 1848.

Railroad Iron, Pig Iron, &c.
600 Tons of T Rail 60 lbs. per yard.
25 Tons of $2\frac{1}{2}$ by $\frac{1}{2}$ Flat Bars.
25 Tons of $2\frac{1}{2}$ by 9-16 Flat Bars.
100 Tons No. 1 Gartsherrie.
100 Tons Welsh Forge Pigs.

For Sale by A. & G. RALSTON & CO.
No. 4 So. Front St., Philadelphia.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO
take orders for Railroad Iron to be made at their
Phoenix Iron Works, situated on the Schuylkill River,
near this city, and at their Safe Harbor Iron Works,
situated in Lancaster County, on the Susquehanna river;
which two establishments are now turning out
upwards of 1800 tons of finished rails per month.
Companies desirous of contracting will be promptly
supplied with rails of any required pattern, and of the
very best quality.

REEVES, BUCK & CO.,
45 North Water St., Philadelphia.
March 15, 1849.

Railroad Iron.

THE Undersigned offer for sale 3000 Tons Railroad
Iron at a fixed price, to be made of any required
ordinary section, and of approved stamp.
They are generally prepared to contract for the de-
livery of Railroad Iron, Pig, Bar and Sheet Iron—or
to take orders for the same—all of favorite brands, and
on the usual terms. ILLIUS & MAKIN.

41 Broad street.
March 29, 1849. 3m.13

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW
turning out one thousand tons of rails per month,
at their works at Trenton, N.J. They are prepared to
enter into contract to furnish rails of any pattern, and
of the very best quality, made exclusively from the fa-
mous Andover iron. The position of the works on the
Delaware river, the Delaware and Raritan canal, and
the Camden and Amboy railroad, enables them to ship
rails at all seasons of the year. Apply to
COOPER & HEWITT, Agents.
17 Burling Slip, New York.

October 30, 1848.

WILLIAM JESSOP & SONS'
CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,

PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.

Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.

German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.

Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by

WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—

Curtis & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.

May 6, 1849.

Railroad Iron.

100 Tons $2\frac{1}{2} \times \frac{1}{2}$, **30** Tons Railroad.

All fit to re-lay. For sale cheap by

PETTEE & MANN,
228 South St., New York.

May 16, 1849.

MANUFACTURE OF PATENT WIRE ROPE
M and Cables for Inclined Planes, Standing Ship
Rigging, Mines, Cranes, Tillers, etc., by

JOHN A. ROEBLING, Civil Engineer,

Pittsburgh, Pa.

These Ropes are now in successful operation on the planes of the Portage railroad in Pennsylvania, on the Public Slips, on Ferries, and in Mines. The first rope put upon Plane No. 3, Portage railroad, has now run four seasons, and is still in good condition.

Iron.

THE Works of the New Jersey Iron Company at Boonton, N. J., having been recently enlarged and put in good repair, the company are prepared to receive orders for Iron, which will be executed with dispatch; and they warrant their iron equal in quality and finish to any in this country.

Round and square, to 6 inches,

Flat

4 "

Ovals, half-ovals and half-round.

Hoop, band and scroll iron.

Nail plates, superior charcoal Horse shoe,

Iron, sheet and Boiler iron.

Tire iron for locomotives.

Railroad spikes.

Pig iron of superior quality for chilling.

do. for foundry purposes.

For sale by

JOHN F. MACKIE,
85 & 87 Broad Street,

Sole agent for the New Jersey Iron Co.,
June 9, 1849.

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.
The above Spikes may be had at factory prices, of Erastus Corning & Co. Albany, Merritt & Co., New York; E. Pratt & Br. Inc., Baltimore, Md.

LAP—WELDED
WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,
FROM $1\frac{1}{2}$ TO 8 INCHES DIAMETER.

These are the ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers

THOMAS PROSSER,
Patentee.
28 Platt street, New York.

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.,
Offer for sale, Hot Blast Charcoal Pig Iron made at the Catoctin (Maryland), and Taylor (Virginia), Furnaces; Cold Blast Charcoal Pig Iron from the Cloverdale and Catawba, Va., Furnaces, suitable for Wheels or Machinery requiring extra strength; also Boiler and Flue Iron from the mills of Edge & Hilles in Delaware, and best quality Boiler Blooms made from Cold Blast Pig Iron at the Shenandoah Works, Va. The productions of the above establishments can always be had at the lowest market prices for approved paper.

American Pig Iron of other brands, and Rolled and Hammered Bar Iron furnished at lowest prices. Agents for Watson's Perth Amboy Fire Bricks, and Rich & Cos. New York Salamander Iron Chests. Baltimore, June 14, 1849.

6 mos

Iron Wire.

REFINED IRON WIRE OF ALL KINDS,
Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

American and Foreign Iron.

FOR SALE,

300 Tons A 1, Iron Dale Foundry Iron.	
100 " 1, "	" "
100 " 2, "	" "
100 " " Forge	" "
400 " Wilkesbarre	" "
100 " " Roaring Run" Foundry Iron.	
300 " Fort	" "
50 " Catoctin	" "
250 " Chikiswalungo	" "
50 " " Columbia" "chilling" iron, a very superior article for car wheels.	
75 " " Columbia" refined boiler blooms.	
30 " 1 x $\frac{1}{2}$ Slit iron.	
50 " Best Penna. boiler iron.	
50 " " Puddled" "	
50 " Bagnall & Sons refined bar iron.	
50 " Common bar iron.	

Locomotive and other boiler iron furnished to order.

GOODHUE & CO.,
64 South street

New York.

Roman Cement.

OF the best quality, now landing from ship Hendrick Hudson, from London, made by Billingsley, Mial & Co., and superior to anything of the kind manufactured in England. For sale by G. T. SNOW,
109 Water Street, New York.

LAWRENCE'S ROSENDALE HYDRAULIC
Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years. For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,
142 Front-street, New York.

Orders for the above will be received and promptly attended to at this office.

32 ly.

NICOLL'S PATENT SAFETY SWITCH FOR
Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,
Reading, Pa.

PHILADELPHIA CAR MANUFACTORY,
CORNER SCHUYLKILL 2D AND HAMILTON STS.,
SPRING GARDEN, PHILADELPHIA CO., PA.

Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

RAILROAD CARS, Viz.:

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon good terms as at any other establishment in the country.

Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day. Philadelphia, June 16, 1849.

1y25

Contract for building an Electric Telegraph from Halifax and onwards, in the Province of Nova Scotia.

Sealed Tenders will be received until the 30th day of June next, for building a Line of Electric Telegraph, starting from the city of Halifax—following the public road on the western side of Bedford Basin, thence from the head of the Basin to the Eastern Post Road from Halifax to Truro, and from Truro to the northwest boundary of Nova Scotia, passing through the village of Amherst—following generally the line of the post road, or such other line near thereto, as may be hereafter directed by the commissioners.

The line will be built forty posts to the mile—said posts to be Hacmatac or Cedar, 25 feet in length, 6 inches in diameter at the top, stripped of bark, as nearly straight as the natural growth will permit, and each post to be set five feet in the ground, either in firm earth of sand or gravel, and strongly embedded. Where rock occurs, they are to be firmly secured by means of foot bands and braces, or by a wall of stone well laid, not less than five feet in height, wedging towards the poles; and where soft, or wet earth or clay is found, the hole shall be enlarged sufficiently, and the earth replaced with stone, so as to prevent equally the poles from being disturbed or driven from the perpendicular by the action of violent winds, or their upheaving in soft and wet soil by the frost.

Where the Line passes through forests, dead trees and all other trees, which, by falling, may touch the wires, to be cut down at the expense of the Contractor—the object being to prevent the working of the line being affected by wind falls.

The line is to be constructed with a single line of wire, of the best quality, number nine, and weighing not less than 330 lbs. to the mile—each wire to be firmly connected with, and yet insulated from, the top of the posts, by the Patent Insulator—of which a pattern may be seen by applying at the office of the Provincial Secretary. It consists of a cast iron shaft, with teeth cup and cover, glass ball, with bolt and shoulders, and nuts and screws at each end to secure the wire firmly to the glass ball. The glass ball to be cemented in the cast iron cup, with a non-conducting cement, by a lining of some non-conducting substance between the bolthead and the cover, so as to secure a perfect insulation, and to protect the glass from fracture and other damage.

The party contracting will be required to furnish the necessary Registers, Batteries, and magnets, of the latest and best quality, of Morse's Patent, for not less than three stations—their different sites to be hereafter appointed by the commissioners.

The whole line will be required to be completed in good working order, and ready to be delivered to the commissioners or their agents, fit for immediate use, on or before the first day of October next.

The tenders will not include the cost of the poles—the commissioners having already arranged by contract for a sufficient number of these to build the whole line; and these will be laid down in such quantities and sites as may be required.

Ample and satisfactory security will be required for the due and faithful performance of the work, as above stipulated.

JOSEPH HOWE,
GEORGE R. YOUNG,
W. MURDOCK

Commissioners.

A. G. ARCHIBALD,
THOMAS LOGAN,

Halifax, May, 1849.

325

Large Wooden Pumps.

SEVERAL Large Wooden Square Pumps, of various sizes from 6 to 24 inches, and lengths from 10 to 25 feet, strongly bolted and strapped together with wrought iron; and used to great advantage on the Boston Water works; also two screw pumps each 25 feet long and 2½ feet in diameter, are now for sale by the Boston Water Commissioners.

For further particulars inquire at No. 119 Washington Street, Boston, or of E. S. CHESBROUGH, West Newton,

June 8, 1849.

P. S. DEVLAN & CO's Patent Lubricating Oil.

THE Subscribers invite the attention of Railroads, Steamboats, Machinists, etc., to the above article of Oil; they are prepared to supply it in any quantity. Certificates of its superiority over all other oils, from several of the largest Works and Railroads, can be seen at our office. KENNEDY & GELSTON,

5½ Pine street, New York,

Sole Agents for the New England States and State of New York.

ly 14

To RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY. The subscribers have for sale American and English Bar Iron, of all sizes; English Blister, Cast, Shear and Spring Steel; Juniata Rods; Car Axles, made of double refined iron; Sheet and Boiler Iron, cut to pattern; Tires for Locomotive Engines, and other railroad carriage wheels, made from common and double refined B. O. Iron; the latter a very superior article. The Tires are made by Messrs. Baldwin and Whitney, Locomotive Engine Manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address JAMES ROWLAND,

Prest. Beaver Meadow Railroad & Coal Co.,
Philadelphia.

or, L. CHAMBERLAIN, Sec'y,
at Beaver Meadow, Pa.

May 19, 1849.

20ft

India-rubber for Railroad Cos.
RUBBER SPRINGS—Bearing and Buffer—Fuller's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1½ to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,

Warehouse 23 Courtlandt street.
New York, May 21, 1849.

Text Book of Mechanical Drawing,

FOR the use of SCHOOLS and SELF-INSTRUCTION, containing,

1st. A series of progressive practical problems in Geometry, with full explanations, couched in plain and simple terms; showing also the construction of the parallel ruler, plane scales and protractor.

2d. Examples for drawing plans, sections and elevations of Buildings and Machinery, the mode of drawing elevations from circular and polygonal plans, and the drawing of Roman and Grecian Mouldings.

3d. An introduction to Isometrical drawing, with 4 plates of examples.

4th. A treatise on Linear Perspective, with numerous examples and full explanations, rendering the study of the art easy and agreeable.

5th. Examples for the projection of shadows. The whole illustrated with 50 STEEL PLATES.

Published by WM. MINIFIE & CO.,

114 Baltimore St., Baltimore, Md.

Price \$3, to be had of all the principal booksellers.

Large Pumps.

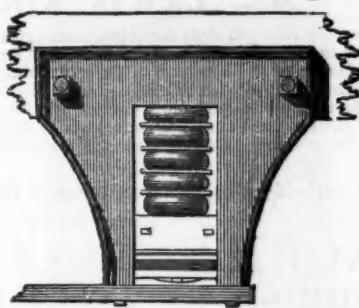
THE Boston Water Commissioners offer for sale a large number and variety of Wooden Square Pumps, used in clearing excavations from water during the construction of the Aqueducts.

Also Two Large Screw Pumps, each 25 feet long and 2½ feet in diameter.

For further particulars, enquire at the office of the Water Commissioners, 119 Washington St., Boston, or of E. S. Chesbrough, West Newton.

May 19, 1849.

6w20

Patent India-rubber Springs.

FULLER & CO. beg that parties interested in the use of these Springs will not be misled by ex parte statements, but will examine the actual Patents and judge for themselves.

The statements made by Messrs. Crane & Ray shall be treated seriatim.

They claim to have first introduced India-rubber Springs about two years since, whereas they were used by Fuller & Co. nearly four years ago.

They claim the exclusive right to use Springs. They have no right whatever; every spring they make is an infringement upon Fuller's patent, dated 1845. They claim the sole right to make India-rubber, and apparently think because a species of India-rubber was patented some years since, that no person can make any other now. A patent was granted in January last to Messrs. Tyler & Helm for a new and improved kind of Vulcanized rubber which is used by Fuller & Co.

Fuller's springs it is needless to say are in very general use, although Messrs. Crane & Ray pretend that they know of only one or two instances. Fuller & Co. guarantee all parties who use their springs.

As to the Legal proceedings—an action has been commenced against one company for an alleged infringement of Goodyear's patent, but is being defended with every prospect of success. An action has also been commenced by Fuller & Co., against parties for an infringement of Fuller's patent, and this will be done in every case of violation.

In every case in which Fuller's spring has been applied, it has been pronounced superior to that made by Mr. Ray, and this fact induces Messrs. Crane & Ray to claim the right of using it. They attempt to lead the public from the real question at issue, by producing a Deposition as to Mr. Ray having tried to make a spring which Mr. Fuller did make and patent. If Mr. Ray did invent a spring in 1844, why did he not apply for a patent, and not wait until 1848, when his application was rejected?

Mr. Knevitt has never stated that the springs were put on by him, which are referred to in Mr. Hale's article, but he does state that those springs are made according to Mr. Fuller's specification, and consequently are an infringement upon it. The article of Mr. Hale in the Boston Advertiser, quoted by Messrs. Crane & Ray, was followed immediately by a letter in the same paper, from Mr. Knevitt, setting forth the facts of the case.

The springs referred to were put on by Mr. Ray before Mr. Knevitt came to the United States; when he arrived he gave Mr. Ray notice not to proceed further in making or vending such springs; Mr. Ray then said he did not wish to infringe, and would not continue to do so, and he then contrived an India-rubber and Air spring which totally failed.

In the selection of their first agent, Fuller & Co. were particularly unfortunate, and their reason for advertising to it is simply that it may tend to throw light on subsequent transactions, and furnish a reply to the remark, "that this opposition was invited by their own delay in getting the thing to work." The individual referred to undertook the agency for Fuller's springs, and left Liverpool on the 1st January, 1847, furnished with a complete set of drawings, models, etc., and every necessary instruction to make arrangements respecting the supply of material, and to have it at work within the time limited by law; but from that hour to the present, not a single communication has been received from the said agent. Some of their models,

however, they have traced into the hands of parties now seeking to invade their rights, and by whom they understand they have been exhibited as specimens of their own invention.

The superiority of Fuller's spring is implied in the offer of the New England Car Co. to make springs upon his principle (now that a preference is given to the disc and plate form) and this notwithstanding the fact, that Fuller & Co. have a patent, and that Mr. Ray's application for one was rejected. The public can judge which company's course has been the most honorable, or whose statements are entitled to consideration.

Fuller's springs can be obtained of Mr. Knevitt the Agent, at 38 Broadway New York, and of Messrs. James Lee & Co., 18 India Wharf, Boston.

May 26, 1849.

C. W. Bently & Co.,

PORTABLE Steam Engine and Boiler Manufacturers, East Falls Avenue, near Pratt St. Bridge, BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupyidg but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand, Baltimore, June 6, 1849.

Extension of the Baltimore & Ohio Railroad.**TO CONTRACTORS FOR GRADUATION AND MASONRY.**

PROPOSALS are invited for the graduation and masonry of about 25 miles more of this road, beginning at a point some 64 miles west of Cumberland, and ending at a point about 13 miles west of Cheat river, embracing all the sections from No. 64 to No. 88, both inclusive. The graduation on nearly all of these sections will be heavy, and will include one Tunnel of considerable length and three short ones. There will be also two Viaducts of medium size.

Specifications and plans of the work will be ready for distribution to proposers by the 13th of June, prox., at the Company's office in Cumberland. The proposals will be addressed to the undersigned, and will be received up to Saturday, July 7th, inclusive, at the same place. Proposers are earnestly requested to examine the line closely before bidding, and to avail themselves of the ample means of information of the value of the work, which will be furnished them, as contractors from distance, accustomed to more difficult excavations than those to be met with on this line, will otherwise be likely to make their estimates too high. The best testimonials will be required, and an energetic prosecution of the work will be necessary. The payments will be cash, with the usual reservation of one-fifth till the completion of the contract. By order of the President and Directors.

BENJ. H. LATROBE,
Baltimore, May 31, 1849. Chief Engineer.

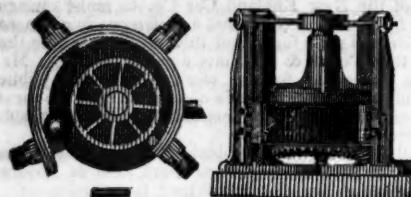
To Contractors.

OHIO AND PENNSYLVANIA RAILROAD. Proposals will be received at the office of the Ohio and Pennsylvania railroad Co., in the city of Pittsburgh, until SATURDAY, the 30th of JUNE, 1849, for the Grading and Bridging of the Railroad from the mouth of Big Beaver to the State line of Ohio, a distance of about twenty miles. Drawings and specifications of the work to be let may be seen at the office in Pittsburgh, during the week before the letting, on application to Solomon W. Roberts, Chief Engineer; and information may be obtained at any time at the office of Edward Warner, Resident Engineer of the Eastern Division, New Brighton, Beaver county, Pa. The work is well worthy of the attention of experienced and energetic contractor, and the line passes through a fertile country, and is easy of access at all points.

By order of the Board of Directors.
WM. ROBINSON, Jr., President.
Pittsburgh, May 21, 1849.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous; considerable saving in first cost; saving in power; the entire saving of shingle's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y.

P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDESIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDESIGNED, the Original Inventor of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

Kensington, Philadelphia Co.,
March 12, 1848.

A. T.

ENGINE AND CAR WORKS.

DAVENPORT & BRIDGES,

HAVING ASSOCIATED WITH THEM
MR. LEWIS KIRK, OF READING, PA.,

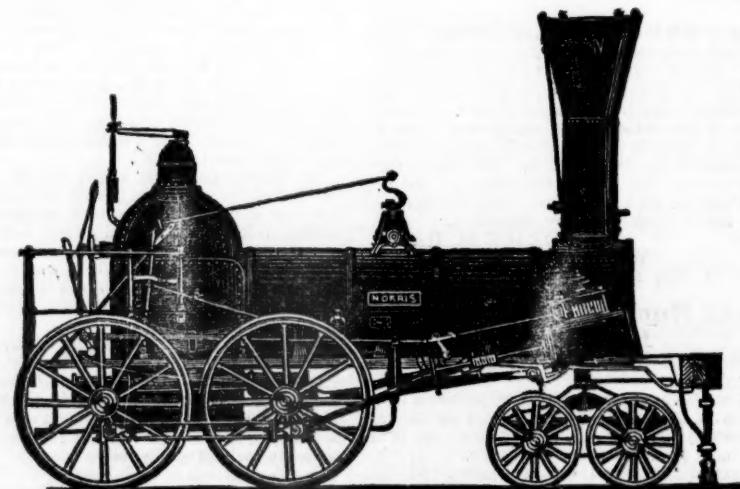
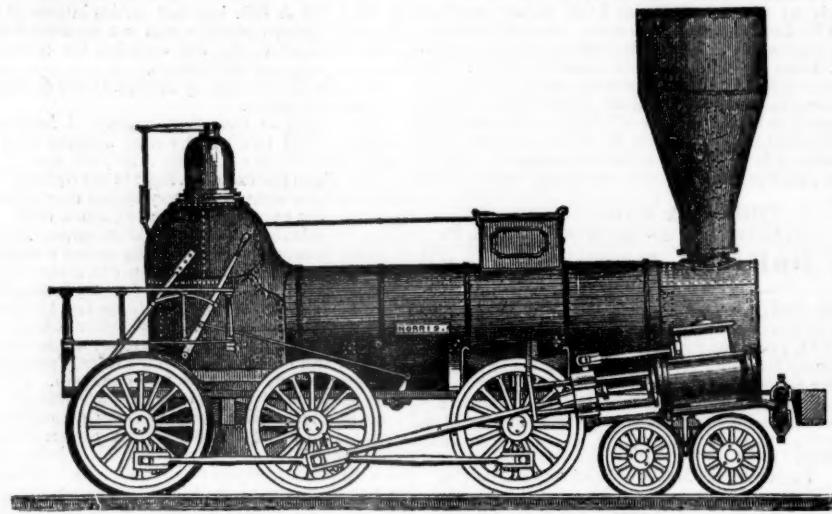
And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds—including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufacturer in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass., February 16th, 1849.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS.

AMERICAN RAILROAD JOURNAL.

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for Locomotive Engines of every size and pattern—also Tenders, Wheels, Axles, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving Cotton, Woolen, or other Mills, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,

Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Plaining, Cutting and Drilling Machines, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 39 Pine street, New York.

WM. B. LEONARD, Agent.

IRON BRIDGES, BRIDGE & ROOF BOLTS, etc. STARKS & PRUYN, of Albany, New York, having at great expense established a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc.—and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook,	Canal Commissioners
Nelson J. Beach,	of the
Jacob Hinds,	State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for
Messrs. Stone & Harris,	the Albany Basin.
Mr. Wm. Howe,	Railroad Bridge Builders,
Mr. S. Whipple,	Springfield, Mass.
January 1, 1849.	Engineer & Bridge Builder, Utica, N. Y.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES
From 4 inches to $\frac{1}{2}$ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

THE NEWCASTLE MANUFACTURING CO. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steam-boats, Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

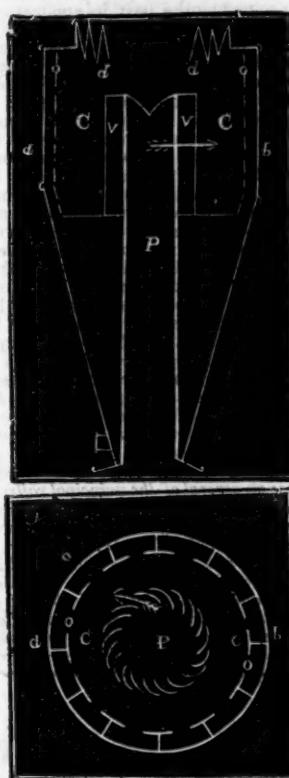
PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

FRENCH & BAIRD'S Patent Spark Arrester.



TO THOSE INTERESTED IN RAILROADS. Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both Passenger and Freight Engines, and have been brought to such a state of perfection, that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust, they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase, or obtain further information in regard to their merits.

R. L. Stevens, president Camden and Amboy railroad company; Rich'd Peters, sup't Georgia railroad, Augusta, Ga.; G. A. Nicolls, sup't Reading railroad, Reading, Pa.; W. E. Morris, pres't Philadelphia, Germantown and Norristown railroad company, Philad.; E. B. Dudley, pres't W. and R. railroad co., Wilmington, N. C.; Col. Jas. Gadsden, pres't S. Carolina railroad co., Charleston, S. C.; W. C. Walker, agent V. and J. railroad, Vicksburg, Miss.; R. S. Van Rensselaer, sup't Hart. and N. H. railroad; W. R. McKee, sup't Lexington and Ohio railroad; T. L. Smith, sup't

N. Jersey railroad and transp. co.; J. Elliott, sup't M. P., Philadel. and Wilm. railroad; J. O. Sterns, sup't Elizabethtown and Somerville railroad; R. R. Cuylar, pres't Central railroad, Savannah, Ga.; J. D. Gray, sup't Macon, (Ga.) railroad; J. H. Cleveland, sup't of Southern railroad, Monroe, Mich.; M. F. Crittenden, sup't mo. power Central railroad, Detroit, Mich.; G. B. Fisk, pres't Long Island railroad, Brooklyn, L. I.

Orders for these chimneys and arresters, addressed to the subscribers, care of Baldwin and Whitney, of Philadelphia, will be promptly executed.

The subscribers will dispose of single rights, or rights for one or more States on reasonable terms.

FRENCH & BAIRD.

Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844.

Improvement for Lessening Friction on Railroads.

THE Improvement sometime since perfected for lessening the friction on rails, cars and engines, having been fairly tested, and found to possess all the advantages anticipated, is now presented to the notice of parties connected with railroad companies.

The article used is India-rubber, chemically combined with a metallic substance, in such a manner as to give it a remarkable degree of strength and durability, and the peculiar quality of not being affected by abrasion, or the extremes of either heat or cold.

The advantages derived from its application are briefly as follows:

1st. A sensible lessening of friction on the rails, and of wear and tear to the machinery of the locomotives and cars.

2d. A general benefit to the whole superstructure of the road, by the trains passing with an easier and less jarring action.

3d. A greater degree of comfort to the passengers, owing to the exemption from the usual loud and annoying rattling of the cars and engines.

4th. An increased speed to the trains, with the same power, arising from the uniform steadiness and decrease of friction to the rails, cars, etc.

And lastly, a material saving in the annual expenditure for repairs.

A drawing, illustrating the application of India-rubber to this purpose, will be found in the American Railroad Journal, under date of May 26, 1844.

The annexed certificate, among others in the hands of the patentee, will explain the nature of this improvement.

J. ELNATHAN SMITH, Esq.

Dear Sir: In relaying the New Orleans and Carrollton railroad, I applied Vulcanized India-rubber in the Chairs, under the joints of the rails, of 1-10 of an inch thick, with the happiest result. The road thus laid has been in constant daily use since August last, and I cannot perceive the least deterioration. The rubber acts admirably as a wedge, in the way I use it, as well as a perfect preventive of the battering down of the ends of the rails. It also makes the road unusually smooth—for in riding over it I have not been able to detect the joints; and I have had the assertion of several observers of such matters to the same effect. We are delighted with it here, and think it a very important simple, and cheap acquisition in the permanent maintenance of railroads.

The annexed sketch of the chair I use, will give an idea how the rubber acts as a wedge. They weigh 13 lbs. and are 7 inches square—are accurately cast to one size, and when in their places, ready for the rails, I place a piece of the rubber 1-10 of an inch thick thereon. The width of the base of the rail, and the length of the chair is 3 $\frac{1}{2}$ by 7 inches. The rail is then forced in sideways, which, owing to there being but 1-16 of an inch space for 1-10 inch thickness of rubber, requires considerable pressure; consequently, the elasticity keeps the rail tight up to the clip of the chair A. I have closely observed the joints when the engine passed over them, but could not detect any depression of the rails separate from each other.

I find that the cost for the rubber will be about 7 cts. per joint, which for 21 feet rails, will be about \$35 per mile, exclusive of the patent right.

The rubber I use is of excellent quality, and made in pieces of about 20 to 30 yards long, and 25 inches wide, (1-10 of inch thick,) and weighs about 4 lbs. to the yard in length. I cut 7 pieces in the width, consequently 7 inches in length makes 7 pieces or 7 yards, weighing about 28 lbs., will give 252 pieces, or half a mile of road with 21 feet rails. I am respectfully yours,

JOHN HAMPSON,

Eng. New Orleans and Carrollton Railroad."

New Orleans, March 14, 1849.

Orders received and full information by

J. ELNATHAN SMITH, Patentee,

23 John street,

New York, May 26, 1849.

AMERICAN RAILROAD JOURNAL.

Fuller's Patent India-Rubber Springs.

THREE can now be no ground of opposition whatever to these Springs. The Commissioner of Patents has not only rejected the application for a Patent for a similar Spring, but a Patent has just been granted for an entirely new species of India Rubber, the quality of which can be surpassed by no other kind, as the experiments which have lately been publicly made, have fully proved. No extremes of heat or cold can effect it, nor will any amount of pressure permanently alter its shape. This Patent refutes the statement of the "New England Car Company" as to their sole right to use India Rubber.

The Spring (composed by alternate layers of India Rubber Discs and Metal Plates) is superior to any other form of Spring, for several reasons: It is the lightest, the most simple and most durable—there being less friction in this than in other kind; it can be regulated to any extent desired. A less quantity of Rubber is required in this form to make a good spring than in any other because each disc or ring of India Rubber is firmly supported by metal plates, and forms in itself a distinct spring—nor is any spiral spring required. The Patentee is consequently able to supply efficient springs at a less cost than any other parties can do. Purchasers are guaranteed in the use of these springs.

The New England Car Company have no right to make an India-rubber Spring with a Bolt through the centre. All companies using such a spring are liable to an action.

Fuller's spring has been used nearly four years with complete success. It is applicable equally to Passenger and Freight Cars, to Locomotives and Tenders.—Bumpers and Draw Springs are always kept on hand, which merely require screwing to a car. It has lately been applied also to several kinds of Machines.

Action will be brought against all persons infringing upon these patents.

The subscriber will show Models and Drawings of the various modes of application to Cars, Machines, Omnibuses, &c. G. M. KNEVITT, Agent.

Principal office, No. 38 Broadway, New York.

Branch office, Messrs. James Lee & Co.'s, No. 18 India Wharf, Boston.

Mr. Hale, the President of the Boston and Worcester Railroad, wrote an article concerning Fuller's paper."

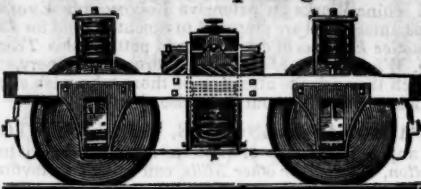
Springs. The "New England Car Company" take the liberty of publishing that article, omitting, however, a very important part; it is therefore given in full now, and the portion omitted by the New England Car Company is printed in italics, that the public may judge the manner in which this "company" pervert Mr. Hale's meaning.

[From the Boston Advertiser of the 7th June].

INDIA RUBBER SPRINGS FOR RAILROAD CARS.

"Of the numerous uses to which the wonderful elasticity and durability of India rubber, renders this material applicable, we are hardly aware of one, in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad.—It is there used not only for the springs on which the car rests, but for the springs attached to the draw bar, at each end of the car, to prevent any jar on the sudden commencement, or interruption of the motion of the car. For both these purposes it seems to be admirably adapted, and we do not learn that during that period in which it has been used, any defect has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring we have seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is also simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months in which we have seen the springs in operation, there is no apparent wear or diminution of its efficiency. Each spring is composed of several circular layers of rings of India rubber, a thin metallic plate of the same size being interposed between each of the layers. From the simplicity of its form, it cannot be expensive, and it admits of being made more or less elastic almost at pleasure. The invention, we understand, was first patented in England, where it has been introduced in general use on several of the principal railroads, and we have no doubt it will come into very extensive use in this country. The patent for this invention, we understand, has been granted to Mr. W. C. Fuller, in England and France, and also in this country. Mr. Knevitt, of New York, is the agent for the patentee in the United States, and he has established a branch office for the supply of the article in this city, as may be learned from an advertisement in another column of this paper."

F. M. Ray's Patent India-rubber Car Springs.



India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, as will invariably be done in every case of such violation.

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

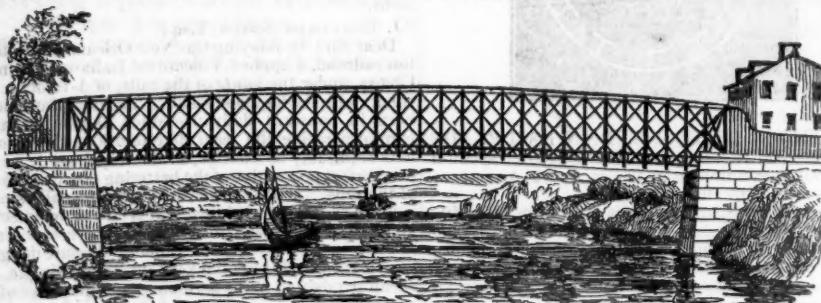
"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of Goodyear's Metallic Rubber, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevitt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevitt, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."



RIDER'S PATENT IRON BRIDGE.

THE RIDER IRON BRIDGE having been fully tested on the Harlem Railroad, by constant use for about eighteen months, and found to answer the full expectations of its most sanguine friends, is now offered to the public with the utmost confidence as to its great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time is so arranged as to secure the combined principles of the Arch, Suspension and Triangle, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

THE IRON RIDER BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, made under the above patent, at short notice, and at prices far more economical than the best wood structure, and on certain conditions, the first cost may be made the same as wood.

Models, and pamphlets giving full descriptions of the RIDER BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 74 BROADWAY, up stairs, or of W. RIDER & BROTHERS, 58 Liberty Street, where terms of contract will be made known, and where orders are solicited.

November 25, 1848.

RAILROAD India-rubber Springs.

IF any Railroad Company or other party desires it, THE NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metallic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.

May 24, 1849.

Welded Wrought Iron Tubes.

FOR Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

AMERICAN RAILROAD JOURNAL.

Mr. HALE:—“The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Springs upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, on arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Good-year, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanised India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most to the other roads terminating in this city.”

And yet Mr. Knecht is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

Devlan's Machinery Oil.

THE Subscribers, Agents for P. S. Devlan & Co's “Patent Lubricating Oil”—price 80c. per gallon 4 mos. or 3 per cent off cash.

We refer to the following certificate of Messrs. Norris Brothers, in whose works, any one by calling can see the oil in use and judge for themselves.

NORRIS' LOCOMOTIVE WORKS. {
Philadelphia, April 2, 1849. }

We have been using throughout our Works, during the last six weeks, “Devlan's Lubricating Oil,” and so far as we have been able to judge from its use, we think it preferable to the sperm oil generally used, for both heavy and light bearings. NORRIS, BROTHERS.

For sale by ALLEN & NEEDLES,
22 & 23 South Wharves,
Philadelphia Pa.
14th

Coal.
CUMBERLAND SEMI-BITUMINOUS COAL
superior quality for Locomotives, for sale by
H. B. TEBBETTS,
No. 5½ Pine St., New York.
May 12, 1849. 1m19

RAILROADS.

NORWICH AND WORCESTER RAILROAD.
Summer Arrangement.—1849.

Accommodation Trains
daily (Sundays excepted.)

Leave Norwich at 5 am., and 5 pm.
Leave Worcester at 10½ am., and 4½ pm., connecting with the trains of the Boston and Worcester, Providence and Worcester, Worcester and Nashua, and Western railroads.

New York & Boston Line. Railroad & Steamers. Leave New York and Boston daily, Sundays excepted, at 5 p.m.—At New York from pier No. 18, North River.—At Boston from corner Beach and Albany streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6½ am., from Norwich at 9 am.

32 ly S. H. P. LEE, Jr., Sup't.
May 20, 1849.

ASTERN RAILROAD, Spring and Summer Arrangement. On and after Thursday, March 15, '49,

Trains will leave Eastern Railroad Depot, Eastern Avenue, Commercial-street, Boston, daily, (Sundays excepted.)
For Lynn, 7, 10, a.m., 12, 2½, 3, 4½, 5½, 7, p.m.
Salem, 7, 10, a.m., 12, 2½, 3, 4½, 5½, 7, p.m.
Manchester, 10, a.m., 3, 5½ p.m.
Gloucester, 10, a.m., 3, 5½ p.m.
Newburyport, 7, a.m., 2½, 4½, 7, p.m.
Portsmouth, 7, a.m., 2½, 4½ p.m.
Portland, Me., 7, a.m., 2½, p.m.

And for Boston,

From Portland, 7½, a.m., 3, p.m.
Portsmouth, 7, 9½*, am., 5½*, p.m.
Newburyport, 6, 7½, 10½*, am., 6*, p.m.
Gloucester, 7, a.m., 2, 5½ p.m.
Manchester, 7½, a.m., 2½, 5½ p.m.
Salem, 7, 8*, 9*, 10½, 11-40*, am., 2½, 6*, 7* p.m.
Lynn, 7½, 8*, 9½*, 10½, 11-55*, am., 3, 6½, 7½*, p.m.

*Or on their arrival from the East.

MARBLEHEAD BRANCH.

Trains leave
Marblehead for Salem, 6½, 8½, 10½, 11-25, am.
2½, 4½, 5½, p.m.
Salem for Marblehead, 7½, 9½, 10½, am., 12½, 3½, 5½, 6½, p.m.

GLOUCESTER BRANCH.

Trains leave
Salem for Manchester at 10½, am., 3½, 6½ p.m.
Salem for Gloucester at 10½, am., 3½, 6½ p.m.

Trains leave

Gloucester for Salem at 7, a.m., 2, 5½ p.m.
Manchester for Salem at 7½, a.m., 2½, 5½ p.m.
Freight trains each way daily. Office 17 Merchants' Row, Boston.

Feb. 3. JOHN KINSMAN, Superintendent.

BOSTON AND MAINE RAILROAD.

Spring Arrangement, 1849.
Outward Trains from Boston
For Portland at 6½ am. and 2½ p.m.
For Rochester at 6½ am., 2½ p.m.
For Great Falls at 6½ am., 2½, 4½ p.m.
For Haverhill at 6½ and 12 m., 2½, 4½, 6 p.m.
For Lawrence at 6½, 9, a.m., 12 m., 2½, 4½, 6, 7½ p.m.
For Reading 6½, 9 a.m., 12 m., 2½, 4½, 6, 7½, 9½* p.m.

Inward trains for Boston

From Portland at 7½ a.m., 3 p.m.
From Rochester at 9 a.m., 4½ p.m.
From Great Falls at 6½, 9½ a.m., 4½ p.m.
From Haverhill at 7, 8½, 11 a.m., 3, 6½ p.m.
From Lawrence at 6½, 7½, 9, a.m., 12 m., 2, 3½, 6, 7½ p.m.
From Reading at 6½, 7½, 9, a.m., 12 m., 2, 3½, 6, 7½ p.m.

MEDFORD BRANCH TRAINS.

Leave Boston at 7, 9½ a.m., 12½, 2½, 5½, 6½, 9½* p.m.
Leave Medford at 6½, 8, 10½ a.m., 2, 4, 5½, 6½, p.m.

* On Thursdays, 2 hours; on Saturdays, 1 hour later. CHAS. MINOT, Super't.
Boston, March 27 1849.

BOSTON & LOWELL RAILROAD.
Passenger trains run as follows, viz.: Express Trains.

Leave Boston at 7½ a.m., 12 m. and 5 p.m.
Leave Lowell at 8 a.m., 12 m. and 4 55 p.m.—or on the arrival of the train from Nashua.

Accommodation Trains.

Leave Boston at 7½ and 9½ a.m., 2½, 4½ & 6½ p.m.
Leave Lowell at 7 and 10 a.m., 2, 5 and 6 p.m.

Woburn Branch Trains.

Leave Woburn Centre at 6, 7, 9, 10 a.m., 1½ and 4½ p.m.

Leave Boston at 8, 11½ a.m., 3, 5½ and 7 p.m.
On Saturdays, the last train leaves at 8 instead of 7 p.m.

The trains from Boston at 7½ a.m., and 5 p.m., and from Lowell at 4 55 p.m., do not stop at Way Stations. The trains from Lowell at 8 a.m. and from Boston and Lowell at 12 m., stop at no way station except Woburn Watering Place, and there only for Upper Railroad Passengers.

WALDO HIGGINSON,
Agent Boston and Lowell Railroad Cor.
Boston March 5, 1849.

ESEX RAILROAD—SALEM to LAWRENCE, through Danvers, New Mills, North Danvers,

Middleton, and North Andover.
On and after Thursday, March 15, Trains leave daily (Sundays excepted,) Eastern Railroad Depot, Washington-st.

Salem for South Danvers at 8, a.m., 12:45, 3:45, 6:30, p.m.

Salem for North Danvers at 8, a.m., 12:45, 3:45, p.m.

Salem for Lawrence, 8, a.m., 3:45 p.m.

North Andover 8, a.m., 3:45 p.m.

Middleton 8, a.m., 3:45 p.m.

South Danvers for Salem at 6:45, 10:15, a.m., 2:15, 5:45, p.m.

North Danvers 10, a.m., 2, 5:40, p.m.

Middleton 9:45, a.m., 5:15, p.m.

North Andover 9:20, a.m., 5:05, p.m.

Lawrence 9:15, a.m., 5, p.m.

JOHN KINSMAN, Superintendent.

Salem, Oct. 2, 1848.

BOSTON AND PROVIDENCE RAILROAD.

On and after MONDAY, APRIL 2d, the

Trains will run as follows:—

Steamboat Train—Leave Boston at 5 pm Leaves Providence on the arrival of the train from Stonington.

Accommodation Trains—Leave Boston at 8 a.m., and 4 p.m. Leave Providence at 8½, a.m., and 4, p.m.

Dedham Trains—Leave Boston at 8½ am, 12 m., 3½, 6½, and 10½ pm. Leave Dedham at 7, 9½, a.m., 2½, 5, and 8 pm.

Stoughton Trains—Leave Boston at 1 a.m., and 5½ pm. Leave Stoughton at 11½ am., and 3½ pm.

Freight Trains—Leave Boston at 11 a.m., and 6 pm. Leave Providence at 4 a.m., and 7:40 am.

On and after Wednesday, Nov. 1, the DEDHAM TRAIN will run as follows: Leave Boston at 9 am., 12 m., 3½, and 10½ pm. Leave Dedham at 8, 10½, 11, 4½, and 9 pm.

WM. RAYMOND LEE, Sup't.

FITCHBURG RAILROAD.—

On and after Monday, April 23d, 1849, Trains will run as follows:

Express Train.

Leaves Boston at 7½ a.m.; Fitchburgh at 3:55 p.m. or upon arrival of the trains from the upper roads.

Accommodation Up Trains.

For Groton, West Townsend and Fitchburg, 6 50 and 11 a.m. and 3 40 p.m.

Concord, 6 50 and 11 a.m., 3 40 and 7 p.m.

Waltham, 6 50, 7 35, 10 and 11 a.m., 1 45, 3 25, 3 40 and 7 p.m.

Fresh Pond, Mount Auburn and Watertown, 9 a.m., 12 m. and 2 20 and 7 15 p.m.

West Cambridge and Lexington, 9 30 a.m., 2 30 and 6 30 p.m.

Down Trains.

From Fitchburg, 7 50, 11 55 a.m. and 4 40 p.m.

West Townsend, 7 30, 11 55 a.m. and 4 40 p.m.

Groton, 8 20 a.m., 12 30 and 5 15 p.m.

Concord, 6 25 and 9 a.m., 1 10 and 5 55 p.m.

Waltham, 6 50, 8 15, 9 25 and 11 a.m., 1 35, 3 25, 4 30 and 6 20 p.m.

West Cambridge and Lexington, 7 and 11 15 a.m. and 4 45 p.m.

Fresh Pond, Mount Auburn and Watertown, 7 15 and 10 a.m., 1 30 and 4 30 p.m.

The 6 50 a.m. up train will not stop at Stony Brook, Lincoln and Lunenburg.

The 11 a.m. up train will not stop at Weston and West Acton.

The 3 40 pm. up train will not stop at Charlestown

Porters, West Cambridge and Lunenburg.

The morning train down will not stop at Lunenburg and Lincoln.

The evening train down will not stop at Lunenburg and Stony Brook.

S. M. FELTON, Superintendent.

Boston, April 21, 1849.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

AMERICAN RAILROAD JOURNAL.

NEW YORK AND ERIE RAILROAD. EXTENDED TO OWEGO.

On and after the 1st June, the trains will run as follows, daily, excepting Sundays: For Passengers—Through trains will leave New York for Owego every steamboat, from the Duane-st. pier, at 7½ o'clock, A.M. and 5 o'clock, P.M. stopping at Ramapo Station, Chester, Goshen, Middletown, Otisville, Port Jervis and all the way stations west of the last-named place; and will leave Owego on and after the 4th June, at 6 A.M. and 7 P.M.; and Binghamton, on and after the 1st June, at 7 A.M. and 8 P.M. arriving in New York at 7½ P.M. and 8½ A.M. stopping at all the way stations between Owego and Port Jervis; and, east of Port Jervis, at Otisville, Middletown, Goshen, Chester, Ramapo Station and Spring Valley. Way Trains for Port Jervis and all the intermediate stations, will leave New York, by steamboat Thomas Powell, from Duane-st. pier, at 7½ A.M. and 4 P.M.; and will leave Port Jervis at 6 A.M. and 4 P.M. Milk Trains—A train leaves Otisville at 5½ A.M. arriving in New York about 11. The afternoon milk is taken by the train leaving Port Jervis at 4 o'clock P.M. and arriving in New York about midnight. Freight—Freight leaves New York every night for all the regular stations on the road. A freight train will leave Owego every morning at 6 o'clock; and another will leave Port Jervis, as usual, every morning at 8 o'clock, with market freight, &c. JAS P. KIRKWOOD,

May 30, 1849. Superintendent.

NEW YORK & HARLEM RAILROAD, DAILY. WINTER ARRANGEMENT.

ON and after December 1st, 1848, the Cars will run as follows, until further notice:

Trains will leave the City Hall, New York, for Harlem and Morrisiana at 7, 9, 9.30, 11, am., 12 m., 2, 4, 4.15, 5.30, pm.

Trains will leave the City Hall, New York, for Fordham and Williams' Bridge, at 7 30 and 9 30 am., 12 m., 2, 4 15, 5 30 pm.

Trains will leave the City Hall, New York, for Hunt's Bridge, Underhill's and Hart's Corners, at 9 30 am., 4 15 pm.

Trains will leave the City Hall, New York, for Tuckahoe and White Plains, at 7 30 and 9 30 am., 3 and 4 15 pm.

Trains will leave Davis' Brook, Pleasantville, Chappaqua, Mount Kisko, Bedford, Mechanicsville, Purdy's and Croton Falls, at 7 30 and 9 30 am., 3 pm.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Morrisiana and Harlem at 7 20, 8, 8 50, 10 am., 12m., 1 35, 3, 3 45, 5, 5 35 pm.

Fordham and William's Bridge at 7, 8 30, 9 50 am., 1 15, 3 25, 5 20 pm.

Hunt's Bridge at 8 20, am., 3 18 pm.

Underhill's Road at 8 10 am., 3 08 pm.

Tuckahoe at 8 05, 9 30 am., 3 05, 5 pm.

Hart's Corners at 7 55 am., 2 52 pm.

White Plains at 7 45, 9 10 am., 2 45, 4 40 pm.

Davis' Brook at 9 am., 2 35, 4 30 pm.

Pleasantville at 8 49 am., 2 20, 4 19 pm.

Mount Kisko at 8 30 am., 2, 4 pm.

Bedford at 8 25 am., 1 55, 3 55 pm.

Mechanicsville at 8 15 am., 1 45, 3 45 pm.

Purdy's at 8 05 am., 1 35, 3 35 pm.

Croton Falls, at 8 am., 1 30, 3 30 pm.

The trains for Harlem and Morrisiana leaving City Hall at 7, 9, 9 30, 11, 12, 2, 4, and 5 30, and from Morrisiana and Harlem at 7 20, 8, 10, 12, 1 35, 3, 3 45, and 5 o'clock, will land and receive passengers at 27th st., 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th, and 132d streets.

The 7 30 am., and 3 pm. Trains from New York to Croton Falls, and the 8 am. Train from Croton Falls will not stop between White Plains and New York, except at Tuckahoe, Williams' Bridge and Fordham.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 32d street.

Freight Trains leave New York at 6 am. and 1 pm.: leave Croton Falls at 7 am. and 2 30 pm., Sundays excepted.

NOTICE—On Sundays the 7 am. to Harlem and Morrisiana, returning at 8 o'clock, and the 7 30 am. to Croton Falls, returning 1 30 pm., will be omitted, and the 7 am. from Williams' Bridge will leave at 7 40

ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.

Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinthe, leaving each terminus alternately, until further notice.

Leaving St. Hyacinth	-	-	7 am.
"	"	-	3 pm.
Leaving Montreal	-	-	10 am.

" " - 6 pm.

THOMAS STEERS, Secretary.

May 31, 1849.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains

run daily, except Sundays, as follows:

Leave Baltimore at - - - 9 am. and 3½ pm.

Arrive at - - - 9 am. and 6½ pm.

Leave York at - - - 5 am. and 3 pm.

Arrive at - - - 12½ pm. & 8 pm.

Leave York for Columbia at - - - 1½ pm. & 8 am.

Leave Columbia for York at - - - 8 am. & 2 pm.

Fare:

Fare to York - - - - \$1 50

" Wrightsville - - - - 2 00

" Columbia - - - - 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg

Or via Lancaster by railroad - - - - 89

Through tickets to Harrisburg or Gettysburg - - - 10

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at - - - 5½ pm.

Returning, leaves Owing's Mills at - - - 7 am.

D. C. H. BORDLEY, Sup't.

Ticket Office, 63 North st.

GEORGIA RAILROAD, FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.

	Between Augusta and Dalton, 271 miles.	Between Charleston, and Dalton, 408 miles.		
			271 miles.	408 miles.
1st class Boxes of Hats, Bonnets, and Furniture, per cubic foot	\$0 18	\$0 28		
2d class Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50		
3d class Sugar, Coffee, Liquor, Baggings, Rope, Cotton, Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85		
4th class Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65		
Cotton, per 100 lbs. -	0 45	0 70		
Molasses per hogshead -	8 50	13 50		
" " barrel -	2 50	4 25		
Salt per bushel -	0 18			
Salt per Liverpool sack -	0 65			
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows -	0 75	1 50		

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.

F. C. ARMS,
Sup't of Transportation.

LITTLE MIAMI RAILROAD.—WINTER ARRANGEMENT.

Change of Hours. on and after Thursday, November 9th, 1848, until further notice, Passenger Trains will run as follows:

Leave Depot East Front street at 9½ o'clock, am., and 2½ o'clock, p.m., for Milford, Foster's Crossings, Deerfield, Morrow, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield.

Returning, leave Springfield, at 2½ o'clock, and 9½ o'clock, am.

Passengers for New York, Boston, and intermediate points, should take the 9½ o'clock, am., Train from Cincinnati.

Passengers for Columbus, Zanesville, Wheeling and intermediate towns, should take the 9½ o'clock, am., Train.

The Ohio Stage Company are running the following lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 2½ o'clock, pm. Train from Cincinnati.

The 2½ pm., Train from Cincinnati, and 2½ am., Train from Springfield, are intended for the accommodation of Way Passengers only, and will be eight hours on the road.

Fare from Cincinnati to Xenia - - - \$1 90

Do do Springfield - - - 2 50

Do do Sandusky City - - - 6 50

Do do Buffalo - - - 10 00

Do do Columbus - - - 4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENTS, Superintendent.

The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value to that amount.

BALTIMORE AND OHIO RAILROAD, MAIN STEM.

The Train carrying the Great Western

Mail leaves Baltimore every morning at 7½, and Cumberland at 9 o'clock, passing Elliott's Mills, Frederick, Harper's Ferry, Martinsburg and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester

Trains at Harper's Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia, and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between these points \$7, and 4 cents per mile for less distances.—Fare through to Wheeling \$11, and time about 36 hours, to Pittsburgh \$10, and time about 32 hours.—Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily, except Sundays, from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M., and 5 P. M., and 12 at night from Baltimore, and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay House. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances.

13 yds

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

Summer Arrangement. April 1st, 1849.—Fare \$3.

Leave Philadelphia 8½ am., and 10 pm.

Leave Baltimore 9 am., and 8 pm.

Sunday—Leave Philadelphia at 10 pm.

" " Baltimore at 8 pm.

Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, \$20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, \$12.

" " Wheeling, 13.

Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m. 4 and 7 pm.

Leave Wilmington at 7½ am., 4 and 7 pm.

Neucastle Line.

Leave Philadelphia at 24 pm.—Baltimore at 1 pm.

Fare \$3.—Second class, \$2.

N.B.—Extra baggage charged for.

I. R. TRIMBLE, Gen. Supt.